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PRINCIPAL CONTENTS

Adrenal Graft for Addison's Disease	p. 617	Leading Articles	p. 631
100 War Wounds and Burns	618	Air-raid Shelter Policy	637
Prothrombin in Capillary Blood	621	Equipment of a Mobile Unit	630
Mule-spinner's Cancer	622	Testing Night Vision	636
Derris Treatment of Scabies	624	Vegetables as Food	638
Subcutaneous Ligature of Varicose Veins	626	Progress in Cancer Research	639
		Reviews	628
		Epidemiology Section	657

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BRITISH MEDICAL JOURNAL

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SUCCESSFUL GRAFTING OF ADRENAL GLAND IN A CASE OF ADDISON'S DISEASE*

BY

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The results of transplantation of adrenal tissue in numerous animal experiments do not, on the whole, encourage the use of this method in cases of adrenal insufficiency in man. Moreover, the operation on the animal is carried out under ideal conditions, whereas in man the recipient of the graft is usually extremely ill and the choice of donor is also necessarily limited. Clinical reports of unsuccessful attempts to treat Addison's disease by transplantation of the adrenals are frequent in literature, and even the few reports of successful transplantations are not above criticism.

In the first place, unmistakable proof is needed that the case is one of Addison's disease. Thus, in one case which had been apparently cured by transplantation treatment the eventual necropsy showed that the adrenals were healthy while the graft had decayed (Conybeare and Millis, 1924). Again, in view of the well-known clinical variations in the course of the disease, short periods of improvement with increased blood pressure should not be considered to be the result of transplantation therapy. Transplantation should not be looked upon as clinically successful unless there is a definite improvement extending over a period of months in a case of undoubted Addison's disease. So far as we are able to judge there are no more than five cases in the literature which fulfil this requirement. These are the cases of Reinhart (1928), Halperin and Arkuschenko (1927), Leschke (1928), Beer and Oppenheimer (1934), and Goldzieher and Barishaw (1937). The periods over which these cases were observed subsequent to operation varied from five months to one year.

We are able to add a sixth case to this list—a successful grafting in an indisputable case of Addison's disease, although an atypical one owing to the absence of pigmentation. The patient was under our observation for nearly three years before operation and for fifteen months since operation.

Case History

The patient, a woman aged 56, had undergone hysterectomy at the age of 34 on account of persistent haemorrhage due to myoma. Apart from this she had apparently been healthy, and had had two normal pregnancies. The disease for which she was eventually treated by grafting began very gradually ten years earlier, progressed slowly, and was interrupted by periods of improvement. She became languid and easily fatigued, took less interest in her environment, and became indifferent even with regard to her own health.

The physical symptoms during the course of years included intermittent intestinal disturbance accompanied by painless diarrhoea, which had been mistaken for and treated as enterocolitis. *X*-ray examination of the intestinal tract revealed nothing abnormal. The blood pressure, which had not been taken before the onset of the disease, was always low—between 80 and 90 mm. Hg—and during the more severe phases it was below even this level. The disturbances of temperature were characteristic. The Egyptian winter, generally regarded as agreeably temperate, seemed to her unpleasantly cold. Her body temperature under normal conditions was low—about 97° F. taken rectally—and even during acute infectious illnesses it hardly ever rose above 100.4°. Moderate wasting became unmistakable, even in the early stages of the disease, and increased rapidly in the later stages. The patient lost 22 lb. in the course of six years, half of it in the first six months of 1935. She often suffered from nausea, though vomiting did not actually occur, and she complained of "rheumatic" pain in the musculature of the back.

Two incidents in this history were noteworthy. In June, 1935, she had severe pain in the upper abdomen, the stools assuming a whitish sheen, but there was no jaundice, and the urine on examination was normal. This condition persisted for a week, and was treated as "liver colic" by her doctor. Some months later an attack of "oppression of the heart" occurred, the pain radiating into the left arm. During both these incidents the blood pressure was found to be below 80 mm.

For a time the patient had intravenous injections of glucose, and always felt particularly well for some hours subsequently. To combat the emaciation insulin was given, but even 3 units gave rise to symptoms of overdosage—profuse sweating, tremor, dizziness, and faintness—and had to be discontinued. Such attacks, which resembled angina pectoris, were treated by withdrawal of salt, but the effect of this measure was a rapid increase of weakness, somnolence, muscular pain, and nausea, so that the patient had to return to her usual food, which contained salt at random.

During 1935 all the above symptoms became more pronounced. Malignant tumour was suggested, but examination revealed only a trophic ulcer of the vagina, which on histological examination gave no sign of malignancy.

It was at this time that we first saw the patient. Her bad general condition and cachectic fatigued appearance were noted. There was no abnormal pigmentation or distribution of hair. The blood picture was as follows: erythrocytes, 3,900,000 (later 3,400,000) per c.mm.; haemoglobin, 75% (later 68%); leucocytes, 7,500 per c.mm.—neutrophils 55%, lymphocytes 41%, eosinophils 1%, monocytes 2%, band-like polymorphs 1%. The Wassermann reaction was negative. The blood sugar was 100 to 115 (later 91) mg. per 100 c.cm. The electrocardiogram showed no marked deviation from the normal, and a radiograph of the renal area gave no indication of calcified glands.

Treatment with anterior pituitary extract over several weeks was without result. The administration of cortical extract was then started, the patient receiving daily, and later every second or third day, intravenous injections of 10 c.cm. The result was immediate and impressive: the weakness, muscular pain, and somnolence disappeared, and within two months the patient had put on 11 lb. in weight.

* Abridgment of paper received from Egypt.

For one year all went well, and it was possible to reduce the extract to 20 to 30 c.cm. a week, given intramuscularly. Then a severe crisis occurred following some days of over-exertion and domestic worry. There was nausea with frequent vomiting and fatty diarrhoeic stools, and the abdominal musculature was rigid and painful to pressure. Blood pressure dropped to 70 mm. In view of the patient's very thin veins and the collapsed circulation, intravenous administration of considerable amounts of fluid could not be undertaken. Fluids (1,200 c.cm.) with 20 grammes of salt were given daily, mostly by mouth and to a small extent rectally. The patient received daily 80 c.cm. of adrenal extract (cortin and eschatin), and with eventual improvement the amount was reduced to 70 and later to 50 c.cm. a week, given intravenously. But the former condition of comparative ease could not be regained. The patient's complexion became more yellowish, with a clay-coloured tinge, and freckle-like spots appeared on the backs of the hands and on the face; but the typical Addison pigmentation was not shown, nor was there at any time pigmentation of the mucous membrane of the mouth.

The Operation and After

This was the condition until August, 1938, when a severe Addisonian crisis occurred, due immediately to the damp heat prevailing at that time in Alexandria (86°, with 95% humidity). The amount of extract was increased to 40 c.cm. daily, but the blood pressure dropped to 70 mm.

In this crisis it was decided to graft into the patient the left adrenal gland of a man who had died just previously from a cerebral tumour. The donor was 52 years of age, and belonged to the same blood group as our patient. The graft was made in the abdominal musculature on the left side, under local anaesthesia.

[Here followed in the complete paper a detailed description of the operation.]

Soon after the operation the symptoms of adrenal insufficiency reached their climax—increased somnolence, uncontrollable vomiting, frequent diarrhoeic stools, collapse of circulation, and fall of blood pressure to 60 mm., this in spite of the fact that the daily administration of extract had been increased to 80 c.cm. and that of salt to 50 grammes. Within three days of the operation, however, the condition improved, the dose of extract was reduced, and no more was given after the seventh day, and the patient declared that she felt absolutely well. She left hospital on the sixth day after the operation. During the next two months the blood pressure varied between 115 and 135 mm., the colour of the skin became lighter, and the freckle-like spots were no longer so intensely coloured. But any great exertion or excitement always produced slight somnolence and pain in the back, and during an influenza attack, when the blood pressure was lowered to 80 mm., it was necessary to give 10 to 20 c.cm. of extract for some days.

Comment

From the results of experiments on animals it seems irrelevant to the success of the operation where the grafting takes place (ovary, testis, kidney, musculature), nor does the type of transplantation (whether the organ is cut into slices or grafted as a whole) seem to be of significance. As the operation has been shown to be more likely to succeed in some species of animals than in others, it may be that in man the conditions are exceptionally unfavourable. It has been demonstrated in a great number of animal experiments (Loeb, 1930, 1937) that transplantation in general is more successful the closer the blood relationship between donor and recipient, and in respect of the adrenal gland in particular this has been recently emphasized by several workers (Ingle and Higgins, 1938; Ingle, Higgins, and Nilson, 1938). When selecting the donor the utmost the surgeon can do is to consider the blood group.

The result of the grafting operation must be largely dependent on the bodily condition of the recipient, and in Addison's disease particularly it must not be lost sight of that the insignificant surgical procedure of grafting endangers the patient's life. Treatment by extract before, during, and after the operation has therefore undoubtedly improved the prospects of success.

In our patient the adrenal graft is able to meet the requirements of normal life, but if the demand is above normal it fails. This cannot be due to the fact that there is only one adrenal gland fully functioning, because such symptoms of insufficiency are not met with in cases in which one adrenal gland has been removed by operation. On the contrary, there is complete accordance between our observations and those on the functional behaviour of grafted adrenals in the animal (Ingle, 1937; Perla and Gottesman, 1931a, 1931b; Wyman and tum Suden, 1937).

Summary

In a severe case of Addison's disease the adrenal gland of a patient belonging to the same blood group, who had just died, was grafted into the abdominal musculature. The functional results, as observed over a period of fifteen months after operation, are excellent. A state of compensation has been produced so long as the patient lives under normal conditions. Only after special exertion or during a transitory infection, with increased demand on the adrenal gland, are slight signs of insufficiency noted.

REFERENCES

Beer, E., and Oppenheimer, B. S. (1934). *Ann. Surg.*, **100**, 689.
Conybeare, J. J., and Millis, G. C. (1924). *Guy's Hosp. Rep.*, **74**, 369
Goldzieher, M. A., and Barishaw, S. B. (1937). *Endocrinology*, **21**, 394
Halperin, S., and Arkuschenko, V. (1927). *Russk. Klin.*, **8**, 522.
Ingle, D. J. (1937) *Amer. J. Physiol.*, **118**, 57.
—— and Higgins, G. M. (1938). *Proc. Soc. exp. Biol.*, N.Y., **39**, 165
—— —— and Nilson, H. W. (1938). *Amer. J. Physiol.*, **121**, 650.
Leschke, E. (1928). *Med. Klinik*, **24**, 1268.
Loeb, L. (1930). *Physiol. Rev.*, **10**, 547.
—— (1937). *Science*, **86**, 1.
Perla, D., and Gottesman, J. M. (1931a). *Proc. Soc. exp. Biol.*, N.Y., **23**, 650
—— —— (1931b). Ibid., **28**, 1022.
Reinhart, A. (1928). *Münch. med. Wschr.*, **75**, 1027.
Wyman, L. C., and tum Suden, C. (1937). *Endocrinology*, **21**, 587.

TREATMENT OF 100 WAR WOUNDS AND BURNS

BY

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During recent enemy activity over this country 100 wounded men have been under our care in a military hospital. The great majority were admitted within six hours of injury, unlike those described in previous articles on surgery in the present war (Cohen and Schulenberg, 1940; Brown, Dennison, Ross, and Divine, 1940).

Some 50 of our patients were airmen, both Allied and German. They were brought in within an hour or two of their injury. Excited, with nerves still keyed to the highest pitch, with heads still spinning from the swift rush earthwards, and with wounds bleeding freely from the battle, they formed a striking contrast to the Dunkirk soldiers with their grimy and inflamed wound holes often several days old.

These cases afforded an opportunity of carrying out modern treatment and, as some were in for several weeks, for observing their clinical progress. The preliminary anti-shock measures—warmth, morphine, hot fluids—were necessary in all except trivial cases. Some patients required either blood or plasma. When salines were indicated we often used the intramuscular route for injection in order to eliminate the risk of oedema of the lungs (Billimoria and Dunlop, 1940). The problem of assessing

the precedence for operation, so important with a rush of casualties, did not concern us: with small numbers coming in there was always adequate time to deal with each case separately.

Wounds of the Limbs

Wounds of the limbs constituted the greatest number of our cases, the majority being compound fractures. Complete excision of the wound layer by layer was undertaken in these cases if treatment were instituted within the first eight hours. After excision reduction was carried out, often under the *x*-ray screen. After eight hours we employed surgical cleansing and enlargement to facilitate drainage—that is, "débridement" in the modern sense (see Morrison, 1940a, 1940b; Mackenzie, 1940; Bailey, 1940; d'Offay, 1940).

The removal of retained foreign bodies was incidental to the general cleansing of the wound. In early cases in good condition a careful search was undertaken, especially in the neighbourhood of joints, where, owing to constant movement, it was considered there was less chance than elsewhere of a retained fragment of projectile being walled off and rendered innocuous. Preliminary radiographs were essential, especially in cases presenting an entry wound and no exit wound, with the certainty of a retained projectile. All such cases should be sent, if possible, to places where *x*-ray facilities exist, and should not be explored "blind" first.

The multiple minute fragments of aircraft-cannon shell peppered over the skin and in the superficial tissues were left alone. We painted the puncture holes—sometimes as many as sixty or seventy—with iodine or gentian violet without applying dressings, as Bonnin (1940) suggests. Dressings, in fact, were best left off in such cases owing to their tendency to absorb the antiseptic dyes from the skin (Fleming, 1940).

Through-and-through bullet tracks caused by accidental discharge of firearms, without retained projectile, were often encountered. If not involving bone or large vessels we left them alone. It was astonishing how often these bullets missed or pushed aside important structures. In one case a 0.45 revolver bullet, entering just below the right fibular head, traversed the anterior compartment of the lower limb and came to rest overlying the first cuneiform, whence it was easily removed without fracturing any bone or damaging any nerve.

Tracer-bullet injuries were also seen. A pilot officer had his left humeral head shattered by a tracer bullet; the wound was still smoking furiously till completely excised. In such wounds the tissues around the bullet fragments were burned as well as torn. Extensive shattering injuries caused by fragments of high explosive from the German "Channel Charlies," with their potential risks of grave infection, were also seen.

We found the times for primary suture given by Jeffrey (1940) a useful guide. He states: "In the upper half of the body, including the arms, suture may be attempted up to twelve to fourteen hours after injury. In the lower limbs the limit should be six hours." We did not close up any wound, however, until it was completely excised. No muscle or tendon or nerve was sutured, the only catgut introduced being to ligate main vessels. The first part of the axillary artery was successfully ligated in one case to control a wound of the third part of the vessel. It was considered that prolonged hunting for a damaged nerve in a recent wound was inadvisable. Such cases when healed were sent to a neurological centre for secondary suture.

The wounds were lightly packed with acriflavine–paraffin gauze to prevent collections of blood in the depths and to act as drains. No wound was packed at all tightly, as it was found that tight packs elsewhere introduced into partially cleansed wounds to control haemorrhage as a first-aid measure invariably caused severe pain and inflammatory reaction and required removal in forty-eight hours.

The wounded limbs were then immobilized in plaster-of-Paris. Our technique followed well-recognized lines based on the improvements of the Winnett Orr treatment resulting from experience of surgeons in the Spanish War (Trueta, 1939; Jolly, 1940; Tudor Hart, 1939). No case was treated by Carrel-Dakin irrigation, which, though evidently still used in America (Hermann, 1940), is not employed in present war surgery. Wounds treated elsewhere, not immobilized, or inadequately immobilized on splints, were also put into plaster, with immediate cessation of discomfort, throbbing, and pain. Our plasters were skin-tight except in wounds left open and expected to ooze considerably. In these much cotton-wool was packed over the wound for the reception of discharges inside the plaster (Pannett, 1940). No "windows" were ever employed, the risk of window oedema being well known.

The patients were left undisturbed till the seventh to tenth day in soft-tissue injuries, and the fourteenth to twenty-first day in fractures, by which time the plaster had become loose and was no longer fulfilling its purpose of immobilization. Their progress was painless and afebrile. The plasters were then removed and packs and stitches taken out. A healing granulating wound covered by a variable quantity of thick pus and scabs was constantly observed, with no trace of active inflammation. The presence of dead tissue, as pointed out by Carrel and stressed in a recent paper by Riley (1940), had evidently acted as a stimulation to the proliferation of cells in the process of healing. The wounds were re-dressed, this time with merely a thin strip or wick leading into the wound cavity, easily capable of being extruded by the tissues. Superficial cutaneous irritation around some wounds yielded quickly to application of aqueous gentian violet. No septic lymphangitis or lymphadenitis was seen; no case had a secondary haemorrhage. The observation of Trueta and Barnes (1940), that immobilization in plaster minimizes lymph flow and therefore decreases the chances of absorption of bacteria and their toxic products, was confirmed.

Plaster immobilization was continued till the wound had healed completely. If not, the wounds and the limb inevitably became slightly painful and uncomfortable. Discomfort ceased at once on re-immobilization. No physiotherapeutic measures were started till the wounds had thoroughly healed.

Visceral and Facio-maxillary Wounds

Penetrating wounds of the abdomen and chest were also encountered. The importance of the "time-lag" in visceral lesions was well realized. The extensive intraperitoneal damage produced by projectiles entering through the buttock was again observed in our series. In one patient resection of four feet of small intestine in addition to suture of bladder and rectum was required, but, unlike Gordon Bell's successful case (Gordon-Taylor, 1939), this man died. The causal factor was the initial haemorrhage from the mesenteric vessels. In another case—a through-and-through wound of the right flank—a bruise of the lateral border of the ascending colon was the only visceral lesion, and was not extensive enough to require Jolly's (1940) reperitonizing operation.

Several facio-maxillary injuries were encountered. With a minimum of excision, displaced hard and soft tissues were sutured back as nearly as possible to the normal position, avoiding tension in the replaced structures.

Suturing was found essential, even at the expense of slight distortion, in order to control the very profuse and sometimes dangerous haemorrhage so common in these wounds.

The high frequency of abscess formation which supervenes in the lower jaw after such injuries (see Report on Maxillo-facial Injuries, 1939) rendered primary drainage advisable. In one case—a through-and-through wound shattering both superior maxillae and the nasal septum—a bilateral Caldwell-Luc operation was performed, on the advice of Major Cowper Tamplin, R.A.M.C., to facilitate drainage. The lessening of muco-purulent discharge from the traumatic facio-antral fistulae in this man (a German pilot sergeant), the evident improvement in the closure of the facial wounds, and the lessened risk of severe ectropion on the left side were gratifying. We had the co-operation of Lieut. C. L. Douglas, Army Dental Service, in the treatment of these cases, and they were transferred as soon as possible to a facio-maxillary centre.

Treatment of Burns

Fifteen burns came under our care. They were chiefly of the face and hands, of the first and second degrees, with small areas of third degree. We employed the immediate-coagulation method of combined tanning with silver nitrate 10%, tannic acid 10%, and gentian violet 1% aqueous solution, as described by Dennison (1939). Tannic acid has been used successfully, with various modifications in technique, in the present war (Cohen, 1940a; Gordon, 1940; Heggie and Heggie, 1940; Brown, Dennison, Ross, and Divine, 1940; Ross and Hulbert, 1940).

Thorough preliminary cleansing under anaesthesia was carried out first to eradicate the sepsis that is so likely to supervene and produce scarring and contractures even in burns of first and second degrees. It has been said that "wound excision as a general principle still stands as the surgeon's sheet anchor" (Max Page, 1940). Similarly, adequate preliminary cleansing is the sheet anchor of the treatment of burns.

After cleansing, the triple tan solutions were applied, and coagulation was accelerated by the use of an electric hair-drier. The tan was applied without any break in continuity over the flexor aspects of joints. A degree of splinting of the joints was therefore produced which was not considered unbeneficial, as the parts were placed temporarily in immobilization, the optimum state for healing of any wound. The supple coagulum of the triple tan proved far superior to the rigid eschar of tannic acid alone, and allowed gentle movements to take place without cracking. Movements of affected fingers were allowed from the seventh day onwards, any cracks appearing in the coagulum being filled by a reapplication of the tanning mixture. The pliability resulting from a thin application of the triple tan proved of special value in the treatment of burnt eyelids, whose essential mobility was thus maintained.

Oedema did not develop to any extent in our cases, the main factor in the oedema of burns—infection—having been controlled by the initial cleansing. What little oedema did appear cleared up on elevating the part on pillows. The absence of pain and sepsis was very noticeable. No necrosis of phalanges was seen, and there were no contracture scars. The results were uniformly satisfactory.

Chemotherapy

Chemotherapy was employed in only a few selected cases in our series of wounds and burns. Primary infections by haemolytic streptococci occur in only about 5% of cases with open wounds (Colebrook, 1940), and one of the few wounds we left accessible for investigation purposes—a penetrating abdominal wound—was sterile to culture on admission. Infection by streptococci more commonly occurs in hospital. The plaster immobilization technique minimizes this, for plaster cases militate against the ingress of haemolytic streptococci from the nasopharynx and hands of dressers (Hare, 1940).

Dealing with very recent wounds sustained in aerial combat and in an area where the soil is relatively "clean," we did not consider chemotherapy in any form an essential part of treatment. We employed sulphapyridine prophylactically—its most effective use, according to Buttle (1940)—in several large wounds in which complete wound toilet had not been possible and in which projectile fragments and devitalized muscle were still *in situ*. The dosage was two tablets (each 0.5 gramme) by mouth four-hourly for twenty-four hours, followed by 0.5 gramme four-hourly for the next forty-eight hours. The local application of sulphanilamide powder was not tried. None of our cases showed any streptococcal infection.

Sulphapyridine was given in massive doses in the one case which grew a culture of anaerobic organisms. This was a bomb-fragment injury of the right forearm, with broken ulna and sloughing flexor muscles, that reached us second-hand in an infected state. The benefit of chemotherapy was not noticeable, and amputation was eventually necessary.

All our cases had antitetanic serum either on or before admission, and no case of tetanus was seen.

Anaesthesia

Pentothal sodium followed by nitrous-oxide-and-oxygen administered by Boyle's apparatus has been used in almost all cases. The average British soldier has a phenomenal appetite for all anaesthetics. It was found that an average of 6 to 8 c.cm. of 5% solution was necessary for induction, and a satisfactory state of anaesthesia could not be obtained with less than 16 to 18 c.cm. This anaesthetic lasted for about twenty to thirty minutes, and the patient was round in under an hour. Some cases required about 30 c.cm. for half an hour's anaesthesia. These cases were not round for about two hours, and were drowsy for the remaining twenty-four hours. This confirms the findings of R. H. Moore (1940). When gas-and-oxygen was used as a supplement a smooth anaesthesia with good relaxation and a rapid recovery was obtained. For facial burns and injuries we used pentothal. It proved an ideal anaesthetic for all cases in which a clear airway could be maintained.

The R.A.F. fighter pilots were often brought into hospital in a highly excited state, and it took a great deal of gentle coaxing to persuade some of them to accept even a prick in the arm; any question of inhalation anaesthesia would have raised strong objections. It is now our custom to prescribe omnopon 1/3 grain and scopolamine 1/150 grain one hour beforehand. Phenobarbitone, 1 grain twice daily, is also prescribed for several days afterwards. Many patients have expressed the view that in the future they will not so much mind being wounded if they know that they will have such a pleasant anaesthetic.

In a few cases it was found necessary to operate before the patient had recovered from his shock, in order to arrest haemorrhage or, as in one case, to remove a burning tracer bullet. In these cases pentothal administered slowly gave satisfactory results. As in many instances the patient was already receiving intravenous saline, the pentothal sodium was added to it in the ward, and the patient fell asleep without even knowing that the administration of the anaesthetic had begun. The Army pattern transfusion set was used, 1 gramme of pentothal being added to 200 c.cm. of glucose–saline. The solution was run in at about 120 drops a minute until unconscious-

ness was produced, and then continued at about 40 drops a minute for the duration of the operation, the rate being increased or reduced according to the individual circumstances.

Severely shocked patients were not touched at the end of the operation, but when circumstances permitted were left on the table for several hours. We considered that lifting a gravely ill patient on and off the table, rolling him to put on bandages, and putting him into bed would have been almost certain to tip the balance in the wrong direction.

Local anaesthetics were never used in this series. Several cases admitted second-hand after having had wounds excised and explored for foreign bodies under local anaesthetics were found to be painful and infected. This unfavourable condition had been caused or aggravated in some measure by the insertion of a local anaesthetic into tissues potentially infected and certainly devitalized.

Summary and Conclusions

100 wounds caused by the projectiles of warfare, the majority of them recent, have been treated.

Excision in early cases, and débridement in later cases, followed by adequate immobilization in plaster-of-Paris, have been successfully employed.

Efficient immobilization lessens the incidence of infection in wounds and materially aids its resolution when once it has set in.

Chemotherapy is not necessary as a routine in the treatment of early wounds occurring in areas where the soil is not heavily contaminated with anaerobic organisms. Its best use is as a prophylactic agent in large wounds which it has not been possible to clean completely. We agree with the suggestion of a Field Ambulance officer, Lieut. E. S. Watson, R.A.M.C., that it should be employed as a first-aid measure at the same time as anti-tetanic serum is given to wounded men for whom adequate surgical excision may not be available for many hours.

The silver-nitrate–tannic-acid–gentian-violet treatment of burns again proved successful. We endorse the defence of tannic acid by Park (1940) and the opinions expressed in Cohen's (1940b) summary.

Pentothal intravenously has proved a safe and satisfactory agent for routine use in war surgery.

The use of local anaesthesia in the treatment of war wounds is strongly deprecated.

We wish to thank Major H. G. Hobson, R.A.M.C., for invaluable aid and criticism, and for permission to record our findings. We are also indebted to Lieut. W. Carton Winterbottom, R.A.M.C., who co-operated with us in the administration of many of the anaesthetics in these cases.

REFERENCES

Bailey, Hamilton (1940). *British Medical Journal*, **2**, 535.
Billimoria, B. R., and Dunlop, E. E. (1940). *Lancet*, **2**, 65.
Bonnin, J. G. (1940). Ibid., **2**, 532.
Brown, J. J. Mason, Dennison, W. M., Ross, J. A., and Divine, D. (1940). Ibid., **2**, 443.
Buttle, G. A. H. (1940). *War Primer of Wound Infection*, p. 54, Lancet Ltd., London.
Cohen, S. M. (1940a). *British Medical Journal*, **2**, 251.
—— (1940b). Ibid., **2**, 754.
—— and Schulenburg, C. A. R. (1940). *Lancet*, **2**, 351.
Colebrook, Leonard (1940). *British Medical Journal*, **2**, 682.
Dennison, W. M. (1939). *Lancet*, **2**, 1107.
d'Offay, T. M. J. (1940). *British Medical Journal*, **2**, 646.
Fleming, A. (1940). Ibid., **2**, 715.
Gordon, J. (1940). *Lancet*, **2**, 699.
Gordon-Taylor, G. (1939). *The Abdominal Injuries of Warfare*, Bristol.
Hare, Ronald (1940). *British Medical Journal*, **2**, 235.
Hart, A. Tudor (1939). Ibid., **1**, 1099.
Heggie, J. F., and Heggie, R. M. (1940). *Lancet*, **2**, 732.
Hermann, O. J. (1940). *Arch. Surg.*, Chicago, **40**, 853.
Jeffrey, J. S. (1940). *Edinb. med. J.*, **47**, 727.
Jolly, D. W. (1940). *Field Surgery in Total War*, London.
Mackenzie, W. (1940). *British Medical Journal*, **2**, 503.
Moore, R. H. (1940) Ibid., **2**, 336.
Morrison, J. T. (1940a). Ibid., **2**, 428.
—— (1940b). Ibid., **2**, 646.
Page, C. Max (1940). Ibid., **2**, 733.
Pannett, C. A. (1940). *Lancet*, **2**, 82.
Park, W. D. (1940). Ibid., **2**, 667.
Reports to the Army Council of the Army Advisory Standing Committee on Maxillo-facial Injuries (1939).
Riley, J. F. (1940). *British Medical Journal*, **2**, 516.
Ross, J. A., and Hulbert, K. F. (1940). Ibid., **2**, 702.
Trueta, J. (1939). Ibid., **2**, 1073.
—— and Barnes, J. M. (1940). Ibid., **2**, 46.

A SIMPLE METHOD OF ESTIMATING PROTHROMBIN IN CAPILLARY BLOOD

BY

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The estimation of the prothrombin content of the blood is recognized as a necessary step in the investigation of the haemorrhagic states in general, and it is of particular value in cases of obstructive jaundice prior to operation and in haemorrhagic diseases of the newborn. The method described by Quick (1938) is usually employed. This entails the withdrawal of 4.5 c.cm. of blood either from a vein, which may be difficult to locate in obese or collapsed adult patients, or from the anterior fontanelle in infants, a procedure which the clinician may be unwilling to undertake in view of the haemorrhagic tendency.

If the prothrombin in capillary blood could be estimated in a simple and satisfactory manner the scope and application of such an investigation would obviously be extended. The following method, employing capillary whole blood and snake venom as a source of thrombokinase, can be performed in a few minutes. We have carried out this test on a large series of normal persons, newborn infants, and patients with obstructive jaundice and liver damage, and have found that it gives results comparable to those obtained by Quick's and other methods.

Method and Materials

A standard white-blood-cell-counting pipette is used to measure the various ingredients. It is better to have a number of such pipettes, but if only one is employed it must be cleaned thoroughly with saline after measuring each ingredient. A solution of crystalline sodium oxalate (13.4 grammes per litre) is drawn up into the pipette, and a quantity equal to one division of the pipette is blown into a clean watch-glass. The skin is punctured so that the blood flows freely without squeezing. In infants the heel is the most suitable site. Blood is drawn up to the ninth division and then transferred to the watch-glass. Thorough mixing of blood and oxalate solution is effected by means of a small glass stirring-rod. The snake venom used is Russell-viper venom, supplied by Burroughs Wellcome and Co. under the name of stypven. The solution is prepared by adding 1 c.cm. of distilled water to 0.1 mg. of the venom in dry form. A freshly prepared solution is best, as the efficacy of the venom in solution decreases after a few days. Stypven solution and a solution of anhydrous calcium chloride (2.775 grammes per litre) are in turn sucked up into the pipette to the tenth division and are mixed with the oxalated blood in the watch-glass. Following the addition of the calcium chloride solution, visible fibrin formation usually occurs within twenty-five to thirty-five seconds as timed with a stop-watch. The change is best seen against a white background. The test is repeated on a normal person at the same time and under the same environmental conditions,

and the prothrombin index of the patient's blood is expressed as a percentage of this normal, as follows:

$$\text{Prothrombin index} = \frac{\text{Normal prothrombin time}}{\text{Patient's prothrombin time}} \times 100$$

With practice a high degree of accuracy can be obtained in assessing the coagulation time. Thus repeated estimations done on the same individual under standard conditions show a deviation of only one or two seconds.

It has been shown by Quick (1938) and by Fullerton (1940) that a marked lengthening of the coagulation time occurs only when the level of the prothrombin in the blood falls to 20% of normal or less. By diluting the blood of both the patient and the control to 20% with normal saline, minor differences in the coagulation time become more apparent. If it is desired to adapt this modification to the present technique, a quantity of normal saline equal to forty divisions of the white-cell pipette are added to the ten divisions of oxalated blood present in the watch-glass. After mixing thoroughly, a quantity of this mixture equal to ten divisions is transferred to a second clean watch-glass, in which the test is completed. It should be noted that the effect of such dilution makes it somewhat more difficult to see the onset of fibrin formation.

Comparison with Kato's Test

Our attention has recently been drawn to a paper by Kato (1940) in which he describes a test for estimating prothrombin using capillary whole blood. He states that many hundreds of such tests have yielded results comparable to those obtained by Quick's method on venous blood. The differences between the method described here and Kato's technique are as follows:

1. The use of a white-blood-cell-counting pipette obviates the need for obtaining the special microhaemopipette designed by Kato (1938).

2. The use of snake venom as a source of thrombokinase as described by Fullerton (1940) eliminates the necessity for preparing a brain extract as used by Kato

3. The carrying out of the test on a normal control person at the same time and under the same environmental conditions is felt by us to be a fundamental part of the method. In Kato's method no control on normal blood is done, reliance being placed on standardizing the solution of thromboplastin so as to produce a clotting time of approximately twenty seconds. The control eliminates the effect of minor variations in the solutions used and the changes in the clotting time which result from variations in temperature and humidity. In practice we use our own blood as a control, and have found that the clotting time of undiluted normal blood may be as short as twenty to twenty-five seconds in the heated nursery of the maternity pavilion and as long as thirty-five to forty-five seconds in the cooler general hospital wards in winter-time.

One of us (J. I.) was in receipt of the McCosh Bursary and Crichton Scholarship in Medicine during the period of this investigation.

REFERENCES

Fullerton, H. W. (1940). *Lancet*, **2**, 195.
Kato, K. (1938). *J. lab. clin. Med.*, **23**, 980
—— (1940) *Amer. J. clin. Path.*, **10** 147
—— and Poncher, H. G. (1940). *J. Amer. med. Ass.*, **114**..749
Quick, A. J. (1938) Ibid., **110**, 1658.

Dr. Albert B. Sabin and Dr. Joel Warren (*Science*, 1940, **92**, 536) point out that the toxicity of most available gold compounds is perhaps the greatest barrier to their more widespread use in the treatment of rheumatoid arthritis. In their search for a compound which does not possess this danger of toxicity they have found in preliminary experiments on mice that calcium aurothiomalate fulfils this desideratum. Whether this compound is equally harmless to human beings has yet to be determined by clinical trials.

MULE-SPINNER'S CANCER

BY

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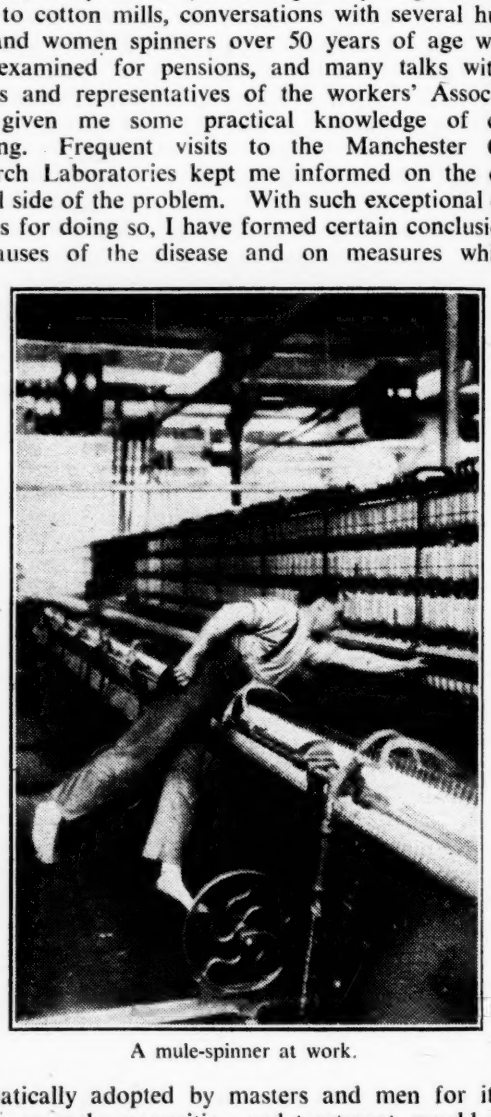
As a medical referee for industrial diseases I have seen over 150 mule-spinners with epithelioma of the skin in doubtful, early curable, and hopelessly neglected states. Visits to cotton mills, conversations with several hundred men and women spinners over 50 years of age whom I have examined for pensions, and many talks with employers and representatives of the workers' Associations have given me some practical knowledge of cotton-spinning. Frequent visits to the Manchester Cancer Research Laboratories kept me informed on the experimental side of the problem. With such exceptional opportunities for doing so, I have formed certain conclusions on the causes of the disease and on measures which, if



A mule-spinner at work.

systematically adopted by masters and men for its prevention or early recognition and treatment, would greatly diminish its dangers if not avert its onset altogether.

Incidence of the Disease.—Southam and Wilson in 1922 drew attention to the frequent occurrence of the disease, and the numbers of cases notified since then to the Medical Inspector of Factories have been recorded in his Annual Reports from 1923. During the seventeen years ending 1939 its average annual incidence was 64 cases with 21 deaths. In 1939 there were 52 cases with 20 deaths, and as medical referee I saw 16 cases last year. The continuing incidence of a preventable disease is very disappointing.

Seat of Election of Scrotal Cancer

Mule-spinners work in bare feet on a wooden floor saturated with oil. They are constantly walking to and fro along the front of the machine, leaning well over but not actually against its front bar, whilst the carriage is moving outwards towards them, in order to join up very rapidly, or piece, broken ends of the yarn. This is almost invariably done with the thumb and finger of the left hand. In most men the bar is on a level with the pubis and groins, and above the scrotum. In the hot room the spinners, in vest

and overalls only, perspire freely, and this must tend to wash off the natural grease of the skin and allow the oil to get on it.

Over 80% of cases occur on the left side. This may be due to one or more of the following causes:

1. The left side hangs anatomically lower than the right. This will be more pronounced when the spinner, in bending forward to piece with his left hand, stands on the left leg, sometimes on his toes, and balances with the right shoulder well above the left. The pelvis is correspondingly tilted.

2. Perspiration from the lower part of the abdomen may therefore tend to run down the left side of the scrotum more than the right.

3. The left side and, less often, the middle of the scrotum will come in contact with the left thigh and the oily trousers some hundreds of times a day.

Piecing with the right hand may, in the same way, be the cause of the trouble on the right side.

Mineral Oil as a Cause of Skin Cancer

Mineral oil was known in the middle of the last century to be a cause of epithelioma of the skin in the paraffin and shale-oil industry. The first case in a mule-spinner was found in the Manchester Hospital records in 1887, thirty-five years after the introduction of shale oil for lubrication of cotton machinery (Henry, 1926). It was proved in 1922 to cause the disease when painted on the skin of mice (Leitch, 1922), and many observations since then have shown that oils from certain fields of origin are more carcinogenic than those from other sources.

Oil on the Clothes.—The spinner oils the spindles twice a day, and these, revolving many thousands of times a minute, throw off some oil on to the clothes in the earlier moments after starting. A little will get on the hands when the oil-can is used and refilled twice a day, and will probably be wiped off on the clothes about the hips to clean the fingers for piecing. In some mills a special attachment to the machine reduces the need for oiling the spindles to once a week. A heavier oil is used twice daily on the carriage and wheels of the mule, and there is a general weekly overhaul and cleaning. More oil will then get on the hands, arms, and clothes, and the face is quite likely to have a little smeared on it unintentionally during all this work. Dermatitis of the face produced by dust or liquids not uncommonly arises in this way.

Oil in the Atmosphere.—Dr. E. L. Middleton (1926) found a definite amount of oil in a fine state of division in the atmosphere of the mule-room, and the hotter the room and the nearer to the machine the more there is. Some of this oil will get on the face and bare arms of the mule-spinners. There was less oil in the rooms where the earlier processes for mule-spinning are carried out, and very little or none in the air of the rooms of a ring-spinning mill. The preliminary processes of all spinning are carried out in hot rooms; but the men wear more clothes about the groins and are not in such constant movement about their work, with tilting of the body and pull on the trousers, as mule-spinners are. They come into daily contact with mineral oils, but do not often suffer from epithelioma of the skin generally or of the scrotum in particular.

Heat and Perspiration.—These alone will not cause the disease. Coal-miners are remarkably free from it, and yet in some hot pits they work in shorts and clogs and perspire freely. Coal dust, unlike its combustion-product soot, does not contain tar, and is not itself a cancer-producing irritant to the skin. In the shale oil and paraffin industry work is carried out in the open—in some processes in very cold temperatures, even as low as zero—and perspiration is not excessive. Both these substances, however, are much more carcinogenic than the mineral oils now in use in the cotton trade, and probably need no contributory cause in producing the disease.

Friction of Clothes.—Dr. Robertson (1927), medical officer of health for Darwen, in 1926 endeavoured by very careful practical investigation to prove that scrotal cancer was caused by friction on the scrotum by the upward pull of the overalls or braces during the piecing movements of the body. The disease is unknown in the woollen industry, in which spinners piece with both hands at once without any tilt of the body. His observations were also directed to prove that very little, if any, oil was thrown from the rotating spindles, but he agreed that some got on the clothes during the general oiling of the machines. Dyes or stiffening materials that may be in overalls are in his opinion a source of irritation, but these will be removed in their early washings.

Ichthyosis.—After an examination of 400 spinners, L. Savatard formed the opinion that ichthyosis is an important aetiological factor in the causation of mule-spinner's cancer.

Want of Bodily Cleanliness.—Some managers of mills who have given close attention to the subject are of the opinion that neglect of soap-and-water cleanliness is a definite factor in causation.

Skin Protectives.—The sebaceous-gland secretion is protective against the action of a mineral oil, and, in control mice, if washed off with soap and water before painting with oil epithelioma will develop more readily than in the unwashed skin. A mixture of lanolin and olive oil applied to the unwashed skin before the application of mineral oil prevents the development of dermatitis and epithelioma. This observation led Dr. Alexander Scott in 1930 to try such an ointment to protect the shale and paraffin workers in Scotland from dermatitis and epithelioma of the skin, to which they are very liable. He informs me that the protection it afforded has proved so satisfactory that a proprietary preparation for the same object is still regularly used by the men. A similar preparation is applied daily in other industries as a preventive of dermatitis due to dust or liquids. These proprietary substances are preferred because they are easier to wash off than a grease like lanolin. Protective application for the thousands of spinners in cotton mills is not practicable, but it could be adopted by those over 50 years of age or those with specially dry skins, of whom there are comparatively few at work.

Conclusions as to Causation

1. *The primary cause* of epithelioma of the skin in mule-spinners is undoubtedly mineral oil.

2. A predisposing cause is probably an abnormally dry skin, especially in older men.

3. Excessive perspiration, by washing off the natural protective grease, allows oil close access to the skin. This is especially likely to happen on the scrotum.

4. Irritation may arise from friction of trousers or overalls on the scrotum during the movements of the body for piecing broken ends some thousand times a day.

5. Want of reasonable use of soap and water may be an occasional cause.

Protective Measures

Regular periodical examination of spinners should be carried out by a medical man for the earliest appearance of an epithelioma, which may be merely a local ichthyotic thickening of the skin or like a simple papilloma or wart. A microscopical examination is often necessary to settle its exact nature. Any one of these early changes can be excised or be treated with radium or *x* rays with such

slight bodily disturbance that there is a good prospect of ability to resume work in ten to fourteen days and of freedom from any recurrence. Immediate removal from the scrotum is especially advisable to prevent hopeless extension to the groins, which may take place very rapidly by the lymphatics (Morley, 1911).

The value of such regular examination every six months for ten years has been established by Dr. Grey at a group of Lancashire mills. He found several suspicious changes which proved to be early stages of epithelioma. Dr. Scott also carries out a similar examination in the shale-oil industry.

Selection of Oils.—The regular use of only the safer oils or blends recommended by the Manchester Committee's scientific staff is advisable; but even if this be done it will be some years before all danger from the disease ceases in spinners who have worked with carcinogenic oils.

Protection of Skin.—The wearing of an additional trouser garment, such as shorts, diminishes contact with oil on the overalls and lessens friction; reasonable attention should also be paid to washing, especially in the scrotal region.

A protective ointment should be used by men over 50 and by those who have an unusually dry skin.

An advisory handbill on epithelioma, with illustrations of its appearance when in a stage suitable for early removal, on lines similar to the one prepared by the Home Office on anthrax (1930, Form 1893), would be helpful.

REFERENCES

Henry, S. A. (1926). Home Office Departmental Committee's Report, London.
Leitch, A. (1922). *British Medical Journal*, **2**, 1104.
Middleton, E. L. (1926). *J. industr. Hyg.*, **8**, 449.
Morley, J. (1911). *Lancet*, **2**, 1545.
Robertson, J. (1927). *J. industr. Hyg.*, **9**, 217.
Southam, A. H., and Wilson, S. R. (1922). *British Medical Journal*, **2**, 971.
Swort, C. C. and J. M. (1934). *Lancet*, **1**, 286.

THE DERRIS ROOT TREATMENT OF SCABIES

BY

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The varied factors responsible for the prevalence and transmission of scabies are to a large extent unavoidable, but the question of its prevention and control must be faced in the light of present-day circumstances as one of the most difficult public health problems. New factors have arisen which probably account for the increase in the incidence of scabies seen in civilian practice. For example, many citizens are now huddled together throughout the night in over-populated shelters where sanitary arrangements are inadequate, and some have been unable to remove their clothes for several weeks. Facilities for bathing have in addition become difficult. It is obvious that with the increasing strain thrown on the medical profession to-day scabies assumes an unpleasant but realistic problem, and one which is becoming unduly prevalent in the Army.

The generally accepted method of treatment in civilian practice is the three-day use of sulphur ointment. Other specific drugs which have been used to destroy the parasite are balsam of Peru, beta-naphthol, and benzyl benzoate. Storax ointment, pernol, kathiolan, mitigal, and the sodium-thiosulphate–hydrochloric-acid method all have their advocates. It is often left to the patient to arrange the disinfection of his bedding and clothing: little wonder is it, then, that recurrences are so frequent. The disadvantages of sulphur ointment are: (1) its greasy and messy qualities, whereby pyjamas become quickly dirty and uncomfortable to wear; (2) the disagreeable odour of the ointment; (3) the confinement of patients to their own rooms during the course of treatment; (4) the likelihood of sulphur dermatitis arising from prolonged application, and therefore its danger in inexperienced hands.

All the mentioned methods of treatment essentially require baths and disinfection of bedding and clothing. The treatment detailed below will show that neither bathing nor disinfection of clothing is necessary for obtaining a cure.

Thomas and Miller (1940) stated that rotenone in a 1 or 2% lotion produced prompt cure in twenty-four unselected cases. I had been in medical charge of a main dressing station where many cases of scabies were seen, and their results induced me to try the treatment. However, instead of using the rotenone solution, which was relatively expensive and difficult to procure, I made a solution of derris root powder, from which rotenone is extracted. The powder was of tested strength and was guaranteed to comply with the requirements of the Ministry of Agriculture as a dressing against the warble-fly.

Derris or tuba root consists of the dried rhizome and roots of the *Derris elliptica* Benth and *Derris malaccensis* Prain, climbing plants that are cultivated in the Federated Malay States, Sarawak, Singapore, Sumatra, and Johore. The powder has a slight odour and a bitter taste, and on inhalation produces a feeling of numbness in the tongue and throat. The root contains up to 10% of the crystalline substance rotenone ($C_{23}H_{22}O_6$), which is known as tuba toxin. Three other crystalline substances—deguelin, tephrosin, and toxicarol—have been isolated. The active constituents are soluble in acetone, benzene, chloroform, ether, and carbon tetrachloride. They are insoluble in water, weak acids, and alkalis. Derris is used extensively in horticulture and agriculture as an insecticide, especially against the warble-fly.

The results of the investigations with derris root may be grouped into three classes.

(A) Experimental Investigation

Solution Used.—A warm solution of 1 gallon of water and 1 oz. of soft soap was prepared, and to this was added 4 oz. of the derris root powder. The mixture was stirred thoroughly, and with the resulting lotion treatment was instituted on 21 unselected cases of scabies. The diagnosis was made in the majority of cases by the combined features of the itch and burrows. In addition these cases had been previously diagnosed as scabies by one or two other medical officers. In view of this and of my own diagnosis based on clinical grounds the spotting of the parasite in every case was considered unnecessary. The parasite cannot always be seen owing to the existing pyodermia; and, again, particularly in patients of cleanly habits, no burrows are in evidence and the search for the parasite proves fruitless. The diagnosis in these cases has to be made by the history of itching at night and the signs of scratching in the areas of characteristic distribution.

Method of Application.—Each patient was given a preliminary bath. He was then instructed to rub the lotion with cotton-wool all over the body from the neck down to the toes, paying particular attention to the spots on the hands, wrists, armpits, and groins. A nursing orderly was detailed to assist in the application on the back and buttocks. The lotion was allowed to dry on the body, and the patient, wearing only pyjamas, was then isolated in a ward. His clothing and bedding were disinfected. One application was given during the morning and one at night, and this procedure was continued until all irritation had ceased. On an average ten applications were found to be sufficient (Table I).

TABLE I.—*Experimental Investigation*

Case No.	Type of Case	Duration in Days	Applications	Follow-up 2 Weeks after Treatment	Follow-up 4 Weeks after Treatment	Results
1	Severe	—	14	+++	+++	Cured
2	Moderate	3	10	++	+++	,,
3	Severe	4	15	++	+++	,,
4	Slight	—	6	+++	+++	,,
5	Severe	—	10	++	+++	,,
6	Moderate	21	10	++	+++	,,
7	Severe	3	12	+	+++	,,
8	Moderate	2	10	++	+++	,,
9	Severe	7	10	++	+++	,,
10	Slight	1	8	++	+++	,,
11	Severe	21	10	+++	+++	,,
12	,,	7	10	++	+++	,,
13	,,	—	8	++	+++	,,
14	Moderate	7	10	++	++	,,
15	,,	—	8	++	++	,,
16	Severe	7	7	++	+++	,,
17	Slight	3	10	++	+++	,,
18	,,	—	9	++	+++	,,
19	Severe	14	10	++	+++	,,
20	Moderate	10	7	+++	+++	,,
21	,,	14	7	++	+++	,,

+ = Rash stationary ; ++ = rash disappearing ; +++ = rash disappeared.

The results obtained from these investigations were encouraging. An effort was then made to standardize the treatment and to reduce the number of applications. The watery solution did not appear to adhere to the skin except in patches, and so it was decided to introduce an ingredient which would produce a slight lather, dry, and leave a thin coating of the powder on the skin. It should be pointed out here that in the preparation of the lotion the powder did not dissolve but formed a pale chocolate-coloured suspension.

(B) Six Applications on Patients wearing Pyjamas Only

Solution Used.—4 oz. of the derris root powder was added to 1 gallon of cold water and thoroughly stirred.

TABLE II.—*Six Applications on Patients wearing Pyjamas Only*

Case No.	Type of Case	Duration in Days	Applications	Follow-up 2 Weeks after Treatment	Follow-up 4 Weeks after Treatment	Results
1	Moderate	—	6	++	+++	Cured
2	,,	6	6	++	+++	,,
3	,,	14	6	++	+++	,,
4	Slight	2	6	++	+++	,,
5	,,	3	6	++	+++	,,
6	Severe	14	6	++	+++	,,
7	Moderate	2	6	++	+++	,,
8	Severe	14	6	+++	+++	,,
9	Slight	2	6	++	+++	,,
10	Moderate	14	6	++	+++	,,
11	Severe	28	6	++	+++	,,
12	,,	10	6	++	+++	,,
13	Moderate	7	6	++	+++	,,
14	Severe	7	6	++	+++	,,
15	,,	12	6	++	+++	,,
16	Moderate	4	6	++	++	,,
17	Slight	21	6	++	+++	,,
18	Moderate	4	6	++	++	,,
19	,,	7	6	++	++	,,
20	,,	7	6			Failed to report
21	Slight	3	6	++		,, ,,
22	Moderate	14	6	+++	+++	Cured
23	Slight	5	6	+++		Failed to report
24	Moderate	2	6	++	+++	Cured
25	,,	7	6	++	+++	,,
26	,,	4	6	+++	+++	,,
27	Severe	10	6	++	+++	,,
28	,,	2	6	++	+++	,,
29	,,	21	6	+++	+++	,,
30	Moderate	7	6			Failed to report
31	Severe	14	6	+++	+++	Cured
32	,,	5	6	+++	+++	,,
33	Moderate	2	6	+++	+++	,,
34	Severe	3	6	++	+++	,,
35	,,	7	6	+	+++	,,
36	,,	7	6	+	+++	,,
37	,,	14	6			Failed to report
38	,,	7	6	++	+++	Cured
39	Moderate	4	6	+++	+++	,,
40	,,	6	6	++	++	,,
41	Severe	7	6	++	+++	,,
42	,,	6	6	+++	+++	,,
43	,,	6	6			Failed to report
44	,,	7	6	++	+++	Cured
45	,,	7	6	++	+++	,,
46	Moderate	7	6	++	+++	,,
47	Severe	4	6	++	+++	,,
48	Moderate	4	6	+++	+++	,,
49	Severe	28	6	++	++	,,
50	,,	14	6	++	+++	,,
51	,,	14	6	++	++	,,
52	,,	8	6	++	++	,,

To each 1/2 pint of lotion used 1 teaspoonful of soap flakes, such as "lux" or "sylvan flakes," was added to obtain the desirable lathery effect.

Method of Application.—52 unselected patients were treated as follows (Table II). Each patient received six applications, one in the morning, afternoon, and evening for two consecutive days. All patients were given the same instructions as those of Class A, and all wore pyjamas. No preliminary bath was given.

After reviewing the results it occurred to me that, since the powder was having the desired effect on the skin, it might be equally efficacious on the clothes worn by the patient. As I have explained, a thin coating of powder was found on the patient's skin after the lotion had dried. Therefore by wearing the same clothes this powder would have a chance to penetrate them and so destroy any parasites that were present. The powder would therefore exert its action on skin and clothing alike.

(C) Six Applications on Patients wearing Clothes

In this group of patients the same solution and the same method of application were employed as in Class B, but with one difference: each patient wore his own clothing. He of course undressed for each application. Bedding only was disinfected. No baths were given. The results are shown in Table III.

TABLE III.—*Six Applications on Patients wearing Clothes*

Case No.	Type of Case	Duration in Days	Applications	Follow-up 2 Weeks after Treatment	Follow-up 4 Weeks after Treatment	Results
1	Moderate	7	6	++	+++	Cured
2	,,	3	6	++	++	,,
3	Severe	3	6	++	+++	,,
4	Moderate	14	6	++	+++	,,
5	Severe	9	6	++	+++	,,
6	,,	8	6	+	+++	,,
7	,,	11	6	++	+++	,,
8	,,	14	6	++	+++	,,
9	,,	10	6	++	+++	,,
10	,,	14	6	+++	+++	,,
11	,,	7	6	++	+++	,,
12	,,	10	6	+++	+++	,,
13	,,	3	6	+++	+++	,,
14	,,	12	6	++	+++	,,
15	Moderate	5	6	+		Recurrence
16	,,	18	6	+++	+++	Cured
17	Severe	6	6	++	++	,,
18	,,	9	6	+++	+++	,,
19	Moderate	5	6	++	+++	,,
20	Severe	4	6	+	++	,,
21	,,	8	6	++	++	,,
22	,,	11	6	++	+++	,,
23	Moderate	14	6	++	+++	,,
24	Severe	7	6	++	+++	,,
25	,,	3	6	+++	+++	,,
26	Moderate	4	6	++	+++	,,
27	Severe	2	6	++	+++	,,
28	,,	5	6	++	+++	,,
29	,,	7	6	++	++	,,
30	,,	9	6	++	+++	,,
31	Moderate	14	6	++	+++	,,
32	Severe	6	6	++	+++	,,
33	,,	3	6	++	++	,,
34	Moderate	8	6	++	++	,,
35	,,	12	6	+++	+++	,,
36	Severe	2	6	++	+++	,,
37	Slight	3	6	+++	+++	,,
38	,,	3	6	+++	+++	,,

Commentary

These findings are encouraging enough to justify publication at this stage. The treatment is of great value where water is scarce and baths are difficult to procure, as in severely bombed areas and in the Middle East. By wearing his clothes the patient is able to carry on with his duties, and expense and trouble are avoided. Thus in the fighting Forces the problem of scabies becomes a regimental one and not a hospital responsibility. The strength of units would be better maintained and consequently the efficiency of such units would be raised. Those affected with scabies in shelters would be able to carry out the treatment quite simply in them provided space was set aside for such a purpose.

The advantages of this method are as follows:. (1) the treatment is non-odorous, non-greasy, and non-messy; (2) the bed-clothes or underclothes are not stained; (3) it is not expensive—each case costs about a penny for a course of treatment; (4) treatment is standardized at two days' duration; (5) it dispenses with the trouble of having clothes disinfected, thereby avoiding hospital treatment; (6) recurrences are few; (7) supervision is unnecessary; (8) baths are unnecessary.

The disadvantage of the method is that some patients complain of a burning sensation in the region of the scrotum and penis after four or five applications. Three or four days after starting the treatment there may be a very mild excoriation of the affected area, particularly the scrotum, and a scaling and slight exudation of serum may appear. This, however, does not incapacitate the patient, and within a week it usually disappears without treatment. The complication is probably due to the strength of the solution. Since using a half-strength solution on a new series of cases the excoriation has been observed in a very much milder form in only 3 cases out of 50. This development was seen in 8 cases in Class A, 15 cases in Class B, and 12 cases in Class C. In spite of this complication patients frequently make such remarks as: "The best night's sleep for a fortnight"; "This should have been used years ago" (this patient was treated three times previously with sulphur ointment); and "Good stuff, this: it does stop the itching."

I should like to express my thanks to Lieut.-Colonel J. F. W. Meenan, R.A.M.C., whose patience and kindly encouragement have contributed towards the completion of the above investigations. To Lance-Corporal A. Murdoch, R.A.M.C., my gratitude is due for his careful help, which has greatly assisted me in compiling these results.

BIBLIOGRAPHY

British Pharmaceutical Codex (1934), London.
Huber, A. (1938). *Lancet*, **1**, 285.
King, R. E. (1940). *British Medical Journal*, **2**, 626.
Kissmeyer, A. (1937). *Lancet*, **1**, 21.
MacCormac, H., and Small, W. D. D. (1918). *J. R.A.M.C.*, **30**, 601.
Sibley, W. K. (1920). *Treatment of Diseases of the Skin*, 3rd ed., London.
Thomas, C. C., and Miller, E. E. (1940). *Amer. J. med. Sci.*, **199**, 670.
Warburton, C. (1920). *Parasitology*, **7**, 265.

SUBCUTANEOUS LIGATURE OF VARICOSE VEINS

BY

H. S. RUSSELL, M.D., B.Sc.

The ability to treat varicose veins by injection of sclerosing solutions is now an accepted part of a practitioner's therapeutic equipment. Unfortunately there are many cases which need something more drastic than injection alone. A positive Trendelenburg sign usually means that ligature of the saphenous vein will be required, either in the thigh or at the saphenous opening.

The methods described by recent writers are not applicable widely enough, as they require the use of an operating theatre, and many patients are unable to stay away from their work in order to attend hospital. For some time I have been trying to evolve a technique which would allow ligature of a varicose vein to be performed with a minimum of complication in the consulting-room. The method now used will be described.

Method of Ligature

The instruments required are one 2-c.cm. syringe, one perineal needle, strong silk or silkworm-gut, 2% novocain solution, and sclerosing solution as preferred (5% sodium morrhuate solution in my own case). The patient usually sits, but occasionally a standing position allows the vein to be found more easily. At the highest point where the vein can be clearly defined the skin is prepared and an intradermal injection of 0.2 c.cm. of novocain is made on each side of the vein. The wheals should be one to one and a half inches apart. The perineum needle threaded with silkworm-gut is now passed through one wheal, under the vein, and out through the other wheal. In some of the early cases the vein was accidentally transfixed, but this appears to be of little consequence apart from the bruising that results. If this mishap is suspected the needle should be left in position until the rest of the treatment has been completed. Transfixion of the vein can be easily avoided by inserting the needle for an inch or so in a direction parallel to that of the vein, and then changing the direction across the course of the vein. The suture is drawn through and the ends are left loose.

A sclerosing injection is now made at the level of the suture, the ends of which are then tied firmly over a tightly rolled pad of gauze. In the earlier cases rubber tubing was used instead of gauze, but the increased elasticity caused the ligature to cut through the skin and leave a scar. A strip of elastoplast is applied over the gauze pad. The whole operation takes about two minutes to complete. The veins below the ligature require injection also, but quite small amounts of sclerosing solution will suffice, as the downward current of blood has been checked. These additional injections can be left over until the stitch is removed, which is done on the fourth day.

After tying the ligature it is pleasing to demonstrate that the vein is now empty. This can be done by getting the patient to contract and relax his calf muscle several times or, more simply, by "milking" the vein downwards. The demonstration is quite effective if the case is a suitable one for the method.

Results

The first case was treated eighteen months ago and the result is still good. Most of the patients have been able to work during the period of treatment. They are well pleased with the result, and there is no scar. Out of a total of nearly 30 patients 3 have returned later to have the other leg treated in the same way. The majority of the patients had either been refused injection treatment elsewhere because of the large size of their veins or had been treated unsuccessfully. It should be more generally recognized that injecting sclerosing solution into a vein which contains blood under pressure will not cure the condition, and may produce an area of pigmentation, thus bringing the whole method into disrepute.

There was one partial failure in the series. In this case I could not define the vein above the knee and had to tie it at a point where venous pressure was fairly high. The vein became patent again in a few weeks, though in the interval large veins below the point of ligature were successfully sclerosed. This man had previously had his leg treated at several hospitals and is pleased with the result, but I regard it as a failure. He ought to have had the Trendelenburg operation.

The most satisfactory case was that of a woman aged 40, who had had bilateral varicose veins for twenty years. They were rather larger in diameter than the average thumb, and extended to the middle of the thigh. Subcutaneous ligature in both thighs and half a dozen injections have produced a perfect cosmetic result. After six months there are still a few tender nodules at the sites of large varicose dilatations, but her ulcer has healed, her legs look normal, and she can walk as far as she likes without trouble.

Complications.—One ulcer developed at the site of ligature. In this case the patient did not attend as instructed

for removal of his ligature, but allowed it to remain *in situ* for a fortnight. Where very large veins are tied a certain amount of periphlebitis occurs. I have seen no harm come of it, and an elastoplast bandage gives complete relief.

Summary

A simple and effective method of ligaturing varicose veins is described. No special apparatus or facilities are required, and no scar is produced.

Clinical Memoranda

Acute Crush Injury of Leg

In the case here reported there were delayed symptoms suggesting traumatic thrombophlebitis, followed by shock and, later, by renal insufficiency. It was successfully treated at the patient's home by four "elastoplast" bandages and two crêpe bandages.

CASE HISTORY

An A.F.S. man aged 41 was driving a motor-cycle combination while looking for incendiary bombs when he was suddenly struck by the off-side wing of a car driven by another A.F.S. man on similar duty. The former was wearing thigh-length rubberized gaiters, long stockings, socks, and strong boots. The inner side of his knee broke the gear lever and deeply indented the petrol tank. The inner side of his leg was crushed against the engine, and his boot broke the starting handle. He was taken to the casualty department of a hospital, but was sent home because he felt fairly well and had only a few abrasions.

First Day.—He complained of shooting pains extending from the inner side of the right ankle to the upper limit of the internal saphenous vein, a feeling of great heaviness, and a burning sensation on the surface of the skin. There was also numbness like that of a swollen finger when its base has been constricted. He was beginning to suffer from shock; his pulse was 120. There was gravitational staining of the skin of the thigh and buttock very much like the post-mortem variety. The leg was twice the circumference of the other and pitted on pressure. The skin below the knee was tense, glazed, and dull red. The posterior tibial veins had become superficial, enlarged, tortuous, tender, and firm as if thrombosis had occurred. This applied in lesser degree to the internal saphenous vein. There was a wheal 3 inches in length above the right knee, and a number of smaller ones, varying from 1/2 to 1½ inches, on the inner side of the leg below the knee. Over these extended several superficial abrasions which had faintly yellow sloughing bases. The veins below the knee were in contact with the surface of the wheals, and through the latter, elsewhere lacerations in the superficial and deep fascia could be palpated, and dark blood could be pressed to the surface from injured muscle fibres and deep veins. The shock was treated, and hot Gamgee fomentations were applied hourly to the whole leg.

Second Day.—He had an anxious expression and had begun to vomit. The pulse was slow and full, and the little urine passed was dark brown and scanty. The fomentations had given the leg and abrasions a more healthy colour, but the limb was more tense. A little black blood had appeared on the Gamgee tissue. Wool was placed round the knee and ankle and an elastoplast bandage was applied from the toes to the knee and another, in continuity, to the upper limit of the saphenous vein. This was followed by two crêpe bandages, which were to be reapplied when they became slack.

Third Day.—There was a great improvement. The vomiting had ceased and there had been a larger flow of urine, which was of a much better colour. The circumference of the leg was considerably smaller, and two more elastoplast bandages were applied, followed by two crêpe bandages.

The patient was up in five weeks, when he complained of pain under the gluteus maximus. An elastic bandage was tried but proved uncomfortable, so the adhesive variety was again applied. A month later he returned to light duty wearing crêpe bandages.

Pathology.—The elastoplast bandages repaired the subcutaneous tears in the ilio-tibial band and the fascial planes, restored the normal circulation of the blood and lymphatics and through them the metabolic health of the muscles, and emptied and prevented the formation of pockets of blood clot whose autolysis under pressure and patchy necrosis were possibly responsible for the glomerular nephritis.

His legs had been healthy before the accident, and there was no family history of varicose veins. His weight had previously been stationary at 12 st. 7 lb.; two months after the accident it was 10 st. 2 lb.

L. C. LODGE, M.R.C.S., L.R.C.P.

Local Sulphanilamide for Penetrating Wounds of Joints

In view of the increasing use of local applications of sulphanilamide it may be of some interest to record the following cases of wounds involving the knee-joint.

Case 1.—A spinster aged 58 was admitted to hospital as an air-raid casualty with an extensive third-degree burn of the buttocks and a gross laceration of the right knee. She was very shocked, but improved after a blood transfusion. It was not until ten hours after admission that she was fit for operation; it was then found that an irregular wound six inches long on the inner side of the knee communicated with the interior of the joint through a deficiency in the capsule, two inches long, beneath the patella. The wound had been temporarily packed with flavine gauze, but was extremely dirty, containing brick dust and fragments of clothing. As much contaminated tissue as possible was excised, the wound was irrigated with flavine solution and packed liberally with sulphanilamide powder, and the skin was lightly sutured. The leg was placed in plaster. The burns were treated with tannic acid. The patient was ill for the next few days, and a course of sulphapyridine was given by mouth, after which she gradually improved. The plaster was removed after three weeks; the greater part of the wound had healed by first intention, and the remainder was granulating well. There had been only a slight discharge of inoffensive pus. There was a little movement of the joint. The wound was again dressed with sulphanilamide powder and the plaster renewed. The plaster was removed permanently after a further three weeks, and at the end of eight weeks the wound was quite healed and there was painless movement at the knee to 35 degrees. The burn was granulating and will need skin-grafting.

Case 2.—A child aged 6 was knocked down by a lorry and was admitted to hospital with a dirty lacerated wound nine inches long on the inner side of the right knee crossing to the lateral side in front of the patellar ligament. At operation it was apparent that a large flap of skin and superficial fascia had been raised and that there was a deficiency 2 cm. in diameter in the capsule of the knee-joint on the *lateral* side of the knee. The tissues contaminated with road dirt were excised as thoroughly as possible (this was unsatisfactory on account of the thinness of the flap) and the wound was packed with sulphanilamide powder and lightly sutured. The leg was placed in plaster after a small counter-incision had been made for drainage through the base of the skin flap on the outer side of the knee. Convalescence was uneventful, and when the plaster was removed seventeen days later the wound was found to be well healed. Four weeks after the accident there was a full range of painless movement in the knee, and the child walked and ran without a limp.

It is not always possible to excise all the contaminated tissue of a wound without making an excessive sacrifice of skin. In each case there was a penetrating wound of the knee-joint in a contaminated wound; in neither case was an effective débridement possible, and in neither case was there any evidence of infection developing in the joint. In the light of these and similar cases it seems that the topical application of sulphanilamide powder to dirty wounds marks a considerable advance in treatment, especially when combined with the well-established principles of surgical toilet and immobilization.

I am indebted to Mr. R. Lodge for permission to publish these cases.

B. J. BICKFORD, M.B., F.R.C.S.

Reviews

PRACTICAL OBSTETRICS

A Short Textbook of Midwifery. By G. F. Gibberd, M.B., M.S., F.R.C.S., F.R.C.O.G. Second edition. (Pp. 548; 194 illustrations. 18s.) London: J. and A. Churchill, Ltd. 1941.

The second edition of this book is sure of a warm welcome. It is no easy task to write a short textbook upon any branch of medicine, but the author appears to possess just those qualifications which are indispensable to success. He has complete command of his subject, including the latest advances; he can be at the same time both lucid and concise, but is never betrayed into prolixity; his choice of subjects for fuller exposition is barely open to criticism; and he does not fall into the error, common among "short" writers, of relying upon illustrations to amplify scanty textual descriptions. In short, Mr. Gibberd's book is an outstanding success. The undergraduate will be delighted because from it he can readily and pleasantly absorb nearly all that he requires for the ordeal of the examination table. The practitioner interested in midwifery but unable to devote much time to current periodical literature will be kept well abreast of the stream of obstetric progress.

Writers of short textbooks can seldom find space for full consideration of recondite subjects, but Mr. Gibberd has managed to slip in a detailed account of the toxaemias of pregnancy. The thoughtful independence which characterizes all his work is conspicuous in this section. In considering the aetiology of hyperemesis he comes to the conclusion that "it is caused by pregnancy; beyond that it would be imprudent to dogmatize." In regard to the whole group of conditions conventionally named "the toxaemias" he remarks that "they have two things in common—that is, they are peculiar to pregnant women and their aetiology is obscure." After this flat refusal to gratify the reader's natural desire for speculative elucidation he proceeds to give him something else to think about in the form of a close description of morbid anatomy and clinical phenomena. The story is completed by a practical and selective account of the more promising lines of treatment, during which the student will be able to relight his pipe. Although when discussing aetiology the author gives the impression of a wary traveller picking his way through a bog, when it comes to treatment he is on terra firma with a clear sky above. He is seldom in doubt as to the best line to take, and he makes it clear that what he recommends he has himself tested and tried out.

Another subject in which the author's personal interest is well known is that of puerperal infection, which receives the full consideration commensurate with its importance. Particularly useful is the discussion of chemotherapeutic methods of treatment. Knowledge of the risks attendant on the use of sulphur compounds has lagged far behind the enthusiasm created by the first stories of their success in the treatment of puerperal infections. These risks are fully explained, and the need for close observation of the condition of the blood is forcibly impressed upon the reader.

On the whole Mr. Gibberd has shown discriminating judgment in the utilization of his limited space. It is worthy of remark, however, that while he declines to describe the details of the Zondek-Aschheim and Friedman biological tests for pregnancy on the ground that "the details are unimportant to the clinician," he devotes several pages to the ingenious models which purport to "explain" the movement of internal rotation of the head. One is tempted to ask him, Does it matter a brass farthing to the clinician what causes this movement?

WORDS OF WISDOM

Practical Public Health Problems. By Sir William Savage, B.Sc., M.D. (Pp. 198. 10s. 6d.) London: J. and A. Churchill, Ltd. 1941.

When a county medical officer of wide experience decides, after putting off the major burden of his office, to utilize his comparative leisure by placing on record some of the views which have served him to direct his policy, we are as a matter of course respectfully interested. But when, for the purpose of these records, with the whole realm of public health to choose from, he elects to narrow down upon the field of environmental hygiene, we are at the first impression respectfully surprised as well. And yet on maturer reflection there may be reason enough. The subject is one upon which the opinions of an acknowledged expert are indeed of special importance at this time, for the modern medical officer of recent growth, by reason of his inevitable addiction to the social aspects of his work, is often too little informed regarding environmental hygiene, and would—or should—sincerely appreciate words of wisdom pronounced regarding it by one who can speak with high authority.

Such thoughts as these are suggested by reading the work entitled *Practical Public Health Problems,* in which many such problems are agreeably presented, ably discussed, and in the majority of cases most satisfactorily solved, by Sir William Savage. Here are some of the views which he expresses. In connexion with water supply he says that in shallow surface waters warmed by the sun a considerable coliform count does not necessarily imply danger to the consumer. He does not believe that sewage-contaminated streams, if drunk by cattle, can set up disease in them. Having himself conducted research upon effluents from creameries, he stresses their harmful effect upon river water, since milk and whey are each 150 times as detrimental as ordinary sewage. Referring to the examination of water samples he holds the opinion that it is always the business of the field worker to interpret the laboratory findings, and not to seek to devolve his responsibilities on a chemist or bacteriologist.

The author gives precise directions for disinfecting a cowshed after tuberculosis. He tells how to run a milk-pasteurization plant. He considers that the failure to sterilize utensils at dairies is the commonest factor in the production of high bacterial counts. To effect improvement in the bacterial standards of the milks supplied in a district a persistent drive against the worst offenders is, to his mind, the best plan. In the investigation of outbreaks of food poisoning, so soon as any source has come under suspicion he advises that the inspector should "race" unheralded to the premises, which may be a place of business, before the manager has had time to destroy the incriminatory evidence!

Other articles are those on food canning, housing inspection, and disinfection. They also are informative and carry conviction. The whole book will be found to possess a guiding value for medical officers as well as for sanitary inspectors, to all of whom it is cordially recommended.

ANXIETY AND ALCOHOLISM

Anxiety and its Treatment: with Special Reference to Alcoholism. By John Yerbury Dent. (Pp. 124. 3s. 6d. net.) London: John Murray. 1941.

Dr. Dent has some very sensible things to say about anxiety, especially in relation to alcoholism. His explanation of anxiety may be paraphrased thus. Every change

in a man's environment has to be met by some change in himself. The human machine maintains its precarious balance by two main reactions: attack or retreat. When the mechanism does not react as a whole in one of these ways there is friction and consequent inefficiency, or alternation of behaviour. This constitutes "anxiety." To be or not to be, that is the anxiety. Man's fore-brain, which is so much larger than that of any other animal, enables him to remember and to learn from experience. His hind-brain closely resembles that of other animals; its task is to react to stimuli, but the fore-brain inhibits this reaction while the nervous impulse is travelling through all the connexions that have been made by past experience. The hind-brain says "Leap," the fore-brain says "Look before you leap." Worry is only possible when there is a problem to be solved, a decision to be taken; it depends on the ability to see two sides of a question. Therefore man worries more than any other animal just because of his superior intelligence. A man who is considered well balanced has a satisfactory balance between his animal and human brains. Lack of such balance is apt to lead him to resort to a fore-brain sedative, but the more the fore-brain is drugged the more drug it requires. When anyone runs away from any discomfort the more acutely conscious he becomes of that discomfort. The alcoholic addict is one who does not face life without continual or intermittent resort to alcohol. He drinks to calm his anxiety, and a temporary relief is bought at no matter what price. Here we may remark in parenthesis that men and women are said to drink for different reasons: the man to convince himself he is a finer fellow than he is, and therefore he drinks in company; the woman to drown her self-pity, so she drinks in secret. Of recent years the "fine-fellow" complex has affected many younger women, but it remains true that all alcoholic addiction is an attempted escape from reality.

Dr. Dent is a convinced believer in the efficacy of treatment by apomorphine for alcoholic addiction. He adduces theoretical considerations and practical experience for his convictions, and gives full details of his treatment. On his own showing, however, the underlying psychological state will require attention after release from addiction, but with that he is less concerned in the present book. Nevertheless, he concludes with a very helpful chapter on "blitzkrieg nerves," and the whole work is interesting, practical, and, at the present moment, topical.

THE PROBLEM OF PAIN

The Problem of Pain. By C. S. Lewis, M.A., Fellow of Magdalen College, Oxford. (Pp. 148. 3s. 6d. net.) The Christian Challenge Series. London: The Centenary Press. 1941.

Mr. C. S. Lewis is rapidly acquiring a leading position among those writers who are trying to restate Christian dogma in modern terms—which is quite distinct from the "modernist" attitude. The problem of pain is of interest both to the medical man and to the theologian; they approach it, however, from very different standpoints. The former regards pain as something which it is his duty to relieve, the latter as something to be sublimated and reconciled with the conception of a benign omnipotence. Truth to tell, this book is more about the larger problem of evil in general, pain being regarded as the "only sterilized or disinfected evil," as distinct from intellectual evil or error. In the author's view pain is for the purpose of shattering our illusion of self-sufficiency, and his experience in the last war leads him to say, "I have seen great beauty of spirit in some who were great sufferers," while candidly admitting, "I have never for a moment been in a state of mind to which even the imagination of serious pain was less than intolerable." Without depreciating in any way the deep sincerity and originality of thought which mark this book, as they do Mr. Lewis's other writings, we doubt whether it would be very helpful to the physician and his special problems. A brief appendix by Dr. Havard is much to the point, stressing the absence of after-effects from short, severe physical pain, compared with the deterioration of character which may result from long-continued pain. He concludes: "Pain provides an opportunity for heroism; the opportunity is seized with surprising frequency."

Notes on Books

A fifth edition of *Aids to Medical Diagnosis*, by the late Dr. A. J. WHITING and Dr. FREDERICK SUTTON, has been published by Baillière, Tindall and Cox at 4s. 6d. This book shows the characteristic virtues and vices of a certain type of registrar teaching. Its virtues are that it helps the student to organize his knowledge and write answers to examination questions; its vices, that it almost completely neglects the physiology and natural history of disease, and teaches from the textbook rather than the patient. We are prepared to believe that some students may be better able to pass their finals by classifying diseases of the heart into conditions in which the apex is, or is not, out, with or without superadded sounds, but it is not our idea of the proper approach to the cardiac patient. We note an excessive fondness for eponyms; few consulting physicians could define Nothnägel's syndrome, which is here mentioned, and few students are likely to meet it. There is a similar weakness for tabulated lists, but while the majority are almost pluperfect, there is a sly pleasure in finding that acute mononucleosis is missing from the differential diagnosis of diphtheria, and jaundice and prothrombin deficiency from the haemorrhagic states. It would be unfair, however, to bring heavy guns into action against this little cruiser. We can well imagine that the vade mecum will have its friends and that their gratitude will repay Dr. Sutton for the pains he has taken in rewriting it.

In our review of the first edition of Mr. LINDSAY REA'S *Neuro-ophthalmology* it was pointed out that the author had collected a mass of useful information that is not easily accessible in the systematized literature. The present edition (William Heinemann, 50s.) is a reprint of the previous edition with the addition of a hundred or so pages summarizing work published during the last few years; the additional material is arranged in chapters that are supplementary to those in the body of the text. As with the main text, the supplement shows the author's acquaintance with the scattered literature, but the matter is presented in a manner which is not conducive to a clear exposition. The present volume is still an uncritical summary of a wide literature and lacks conciseness and stress on fundamental conceptions. Its value as a guide to the literature is, however, considerable.

Volume lx of the *Transactions of the Ophthalmological Society of the United Kingdom* has been published by J. and A. Churchill, Ltd., at 30s. The main topics for discussion at the sixtieth session, held in London in April, 1940, were the choice of operation in glaucoma, the anatomy of the finer retinal vessels, diseases of the lacrimal apparatus, tarsectomy for trachoma; there were also a number of miscellaneous papers and descriptions of ophthalmological apparatus, and Mr. Montague Hine gave an account of some of the happenings and problems of the preceding six months as seen at an emergency ophthalmic base. The volume includes brief reports from those of the affiliated societies which were functioning in the first year of the war.

Materia Medica and Pharmacology for Nurses, by Mrs. GWENDOLEN HINDES, M.Sc., gives a short and simple account of the subject. The author has managed to cover a very wide field in the short space of 160 pages and has maintained a very creditable standard of accuracy. The book is published at 4s. 6d. by Faber and Faber, Ltd.

Principal Drugs and their Uses, by A. L. MORTON (tenth edition, Faber and Faber, Ltd., 2s. 6d.), is a pocket volume intended for the use of nurses. All drugs in common employment are listed in alphabetical order and the composition and uses of each are stated in a few lines. Inspection of the volume shows that care has been taken to keep it up to date. The number of editions through which the book has passed proves that it meets a general need.

The seventh edition of JOSLIN'S book, *The Treatment of Diabetes Mellitus*, has been thoroughly revised and brings the subject right up to date—no easy task. A new section on hyperinsulinism is included. The book, though of less help in routine treatment, remains the best and most comprehensive reference work of books on the subject and must be on the bookshelf of all who work on diabetes. It is published by Kimpton at 35s.

Preparations and Appliances

EQUIPMENT OF A MOBILE UNIT

Dr. HAROLD C. J BALL, Medical Officer, Mobile Unit, New Milton, Hants, writes:

The equipment of the New Milton Mobile Unit not only incorporates one or two devices which have been described in the *Journal* during the last few months but also includes original apparatus for the administration at the site of an incident of radiant heat to patients suffering from shock. The following notes and especially the illustrations of radiant heat cradles may therefore be of interest to other medical officers of mobile units.

First, the general equipment—dressings, splints, instruments, anaesthetics, drugs, etc.—is contained in seven cupboards which are kept at the depot ready for action locally; they are easily packed into the mobile unit van within five minutes should our services be needed in an outlying district. Sterilized dressings are always in readiness in case local hospital or transport facilities fail. In addition we have a portable operating table which has been lent to us.

In our oxygen therapy apparatus we have copied that described by Dr. Marcus Bird in the *Journal* of September 21, 1940 (p. 387). The cost of this was negligible since we made use of copper tubing obtained from a car "dump" and quart milk bottles, and adapted old head-mirror bands and fittings for nasal administration. Besides four nasal attachments we have two old football bladders for use with gas masks, as suggested by Dr. H. L. Marriott (*Journal*, October 19, 1940, p. 519), all necessary pressure being controlled by gas taps. Stretchers in the unit are fitted with the inexpensive, light though rigid, support for a Fowler position which I described in the *Journal* of November 2 (p. 610).

For the treatment of patients suffering from shock we have designed radiant heat cradles which are illustrated (Figs. 1-4). Here again the outlay has been small, for they are each constructed of half-sections of a child's hoop and Essex boarding. The heat is supplied by electric lamps, or, alternatively, since electricity may fail in an emergency, from a primus stove: square and round biscuit and sweet tins and boxes of Essex boarding are used to connect the primus stove with each pair of cradles. Control of heat is regulated by sliding shutters and a central overhead outlet. The whole is easily moved to and from the stretchers; moreover, stretchers and cradles can be set up in the open by resting the stretchers on equipment cupboards or other available supports.

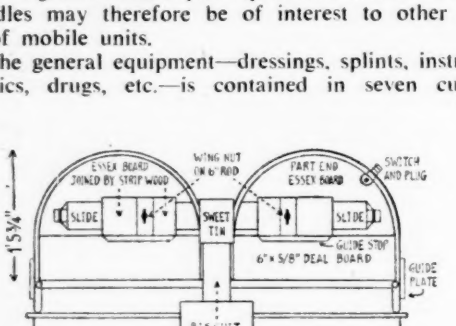

FIG. 1.

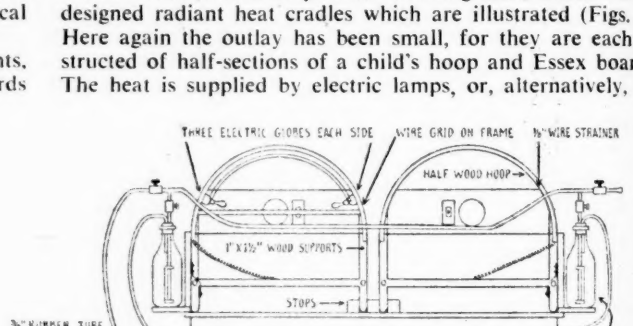

FIG. 2.

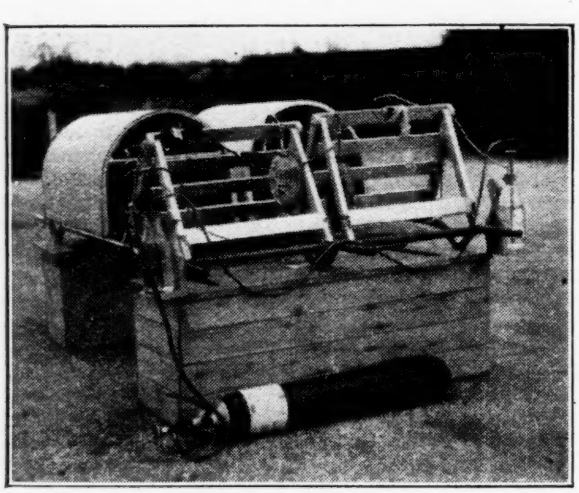

FIG. 3.

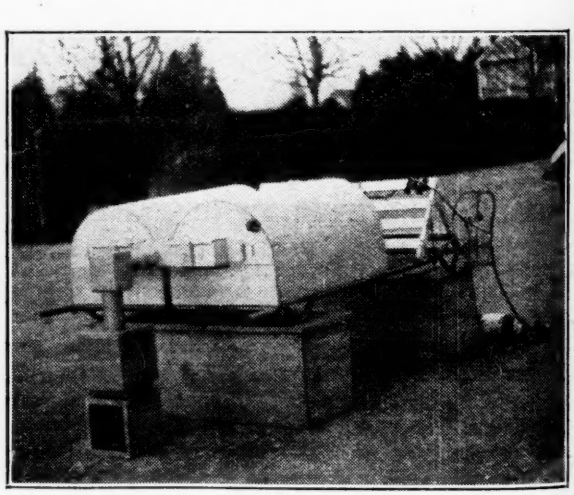

FIG. 4.

We are indebted to Mr. R. J. Stewart of the New Milton St. John Ambulance Brigade for making the cradles, oxygen therapy apparatus, and back rests to the stretchers.

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SCOTLAND DESERVES BETTER SOCIAL LEGISLATION

There was a time when Scotland took a pride in the advanced state of her laws governing public welfare. Legislation often followed the English statutes on the same subject; it took advantage of the extra time to avoid some of their defects, and to introduce improvements which working experience had shown to be desirable. This was true of the Scottish Public Health Act of 1897, which derived its main features from the great English Act of 1875; and to a less extent of the Poor Law Act of 1845. In some aspects of social legislation Scotland took the lead from the start: one need only mention, by way of illustration, the lunacy laws of the middle of last century which in Scotland encouraged the admission to mental hospitals of voluntary and temporary patients without the stigma of certification. This benefit did not reach the English statute book till 1930. The Scottish Act of 1845 was more humane than the famous Poor Law (Amendment) Act of 1834, for it did not insist on the rigid "workhouse test." This piece of kindliness, which was no doubt in keeping with the Scottish tradition and the long association of poor relief with the kirk, had unfortunate consequences which could not have been foreseen at the time. Under Chadwick and his brethren the harsh "offer of the house" to persons applying for relief compelled the authorities to build workhouses. These in the course of time developed into hospitals, because they had to cater more and more for the chronic sick, the aged, and the infirm. The old mixed workhouse was a miserable thing, but progressive Boards of Guardians transformed many of them into institutions which could fairly compete with the voluntary hospitals in their neighbourhood.

When the Local Government Act, 1929, came into operation the new English authorities—the county and county borough councils—found themselves in possession of large numbers of Poor Law institutions. Some of these were ready-made first-line hospitals; others were capable of being enlarged, modernized, and "graded up" to form good hospitals at relatively little expense; and all but the worst had some value, because they could be used for a health purpose, such as the residential care of the chronic sick. In Scotland, unfortunately, few Poor Law institutions had been built at all, except in the larger towns, and fewer still were fit to be brought up to a reasonable hospital standard. For this reason the report of the Committee on Scottish Health Services had to confess in 1936 that there was a serious shortage of hospital beds in the country. "It militates against the ideal of early treatment," they reported, "and, in its effects among the working population, it causes much loss of working time and avoidable expenditure from insurance and other funds." In these circumstances it was to be expected that Scottish legislation would be quick to promote hospital construction and so redress the balance. But not so: although the committee recommended that a definite obligation should be placed on the local authorities to supplement existing hospital facilities if required by the central department to do so, little progress was made until war broke out. The evidence suggests that the fault did not lie with the local authorities but rather with the state of the law. However that may be, the outbreak of war disclosed such an acute shortage of hospital beds that the Department was obliged to build *ad hoc* hospitals for the reception of casualties.

Several factors have combined to retard the development of municipal hospitals in Scotland. The Scottish Local Government Act of 1929 was passed at the same time as its English brother, so Scotland lost its usual opportunity of profiting from the defects of the English statute; in fact, it introduced some faults of its own. A somewhat cumbrous section (27), corresponding with Section 5 of the English Act, enables local authorities to make a scheme for reorganizing their hospital facilities. As in England, the section has been little used, except in the cities. It is only a few weeks since the Corporation of Glasgow, apparently losing hope of more progressive legislation, took this first step in the removal of the institutional care of the sick from the Poor Law. Many authorities in England, however, were able to make use of a satisfactory alternative procedure to bring their institutions under public health administration, by the method of "appropriation"; this was already permissible under Section 95 of the Public Health Acts Amendment Act, 1907, and was extended to county councils by Section 163 of the Local Government Act, 1933. This important provision has been widely used in England, and under its aegis many public assistance institutions have become first-class hospitals.

If this were the only respect in which Scotland lags behind its neighbour in social legislation the position would not be so serious; but the English Public Health Act of 1936 gives large powers to local authorities to provide hospitals and allied services, including clinics and dispensaries, out-patient departments, maternity homes, laboratories, and ambulances. These admirable provisions have no counterpart in Scottish law, and Glasgow, in spite of its recent progress, is still under many disabilities. It has no authority to provide clinics apart from hospitals, and it is greatly hampered in the treatment of non-tuberculous crippling defects. The limitations are serious, and the remedy is simple. It may not be desirable at the moment to introduce an entire Public Health Act for Scotland, but surely the time has come when the two countries should be placed on an equal footing in the treatment of the sick and the crippled. The introduction of a few of the essential sections of the 1936 Act, with modifications to meet Scottish conditions, would not place a great strain on our legislators. Section 173, for example, which simplifies the provision for treatment and after-care of the tuberculous; Section 181, which empowers local authorities to provide hospital accommodation, including clinics, dispensaries, and out-patient departments; and Sections 196–8, with their commonsense powers to provide laboratories, ambulances, and post-

mortem rooms, were never more necessary than at the present time.

Scotland deserves better health legislation; if she is not allowed now to share equally with England she must inevitably suffer a severe handicap when the time comes for post-war reconstruction.

CARBOHYDRATES IN VARIOUS FOODS AND THEIR UTILIZATION

Until lately determination of the carbohydrate content of foodstuffs was in an imperfect state. The analytical methods were not of the best, and it is surprising that many writers on dietetics in health and disease were content to transcribe the values given by older workers. In this country the matter was taken up energetically by McCance and his colleagues, with the result that we have figures which are as reliable as modern analytical procedures can make them. In the U.S.A. the question is being examined again, and one or two recent papers are worthy of attention. Technical difficulties in obtaining reliable figures are considerable. Carbohydrates, for example of fruits and vegetables, have from the metabolic point of view been classified broadly as available and unavailable sources of energy. The available group includes the monosaccharides glucose and fructose, the disaccharide sucrose, and the polysaccharide starch. The unavailable group comprises hemicelluloses, cellulose, and lignin. Hemicelluloses comprise a group of polysaccharides, including pentosans, hexosans, pectins, uronic acids, etc., a large percentage of which can be hydrolysed to non-fermentable sugars. The chemistry of this group of substances is complicated. Cellulose is chemically a single substance and on hydrolysis gives glucose. Lignin (a complex substance of unknown composition) is contained in the supporting structure of plants and is present in small quantity in edible plants.

The analytical determination of the unavailable fraction is difficult, and the method described by Williams, Wicks, Bierman, and Olmsted[1] presents interesting features. They dried the macerated or sliced samples of fruit or vegetable in a hot-air oven at 60° C., pulverized the dried material, ether extracted and removed the soluble sugars (fructose, glucose, and sucrose) with 60% ethyl alcohol, and then estimated them iodometrically. The residue, consisting of starch and unavailable carbohydrate, was subjected to pancreatic digestion in buffered bile-salt solution at *p*H 8. This procedure converts the starch to maltose and renders the protein and fat non-interfering. The reducing power after yeast fermentation gives the figure for soluble hemicellulose. There remains an insoluble residue after pancreatic digestion which can be analysed into cellulose and water-insoluble hemicellulose. The values for available carbohydrate in the common fruits and vegetables thus found were very much of the same order as those given by McCance. The authors propose a classification of fruit and vegetables according to their carbohydrate content, but, as it was found that the older values for available carbohydrate were too high and for unavailable carbohydrate too low, there is much readjustment of the position of the individual foods. For those who still adhere to the prescriptions of diets for diabetics based on more or less accurate calculation of carbohydrate content it will be a source of satisfaction to see more fruits and vegetables in the lower-carbohydrate classes.

It was pointed out by McCance and his colleagues that cooking of certain foods leads to considerable losses in carbohydrate content, and that for such it is desirable to have figures for the foods as eaten. Carpenter,[2] in investigating the effect on carbohydrate metabolism of a variety of foods, carried out a comprehensive analysis of such things as rice, macaroni, potatoes, peas, parsnips, beets, carrots, various nuts, dates, and figs, with a view to determining water content, protein, fat, ash, carbohydrates (reducing sugars, disaccharides, starch, cellulose) in the conditions in which these foods were eaten (cooked or uncooked). The caloric values were determined in the oxy-calorimeter. Boiled rice, for example, can yield only 1 calorie per gramme, and white boiled potatoes rather less than this; boiled carrots or beets give only between 0.3 and 0.4 calorie per gramme. Nuts (high fatty content) of various kinds yielded from 7 to 9 calories per gramme, and dates and figs (very high proportion reducing sugars) nearly 3 calories. The available carbohydrate in various foods having been established, the effect of ingestion of a selected amount of each on the metabolism of a young healthy man was determined. The foods were given under basal conditions, so that what was really determined was the shift of metabolism from the particular basal levels of protein, fat, and carbohydrate to the new levels made possible by the availability of the constituents of the administered food. The constituent specially recorded was the carbohydrate, and the importance of the work lies in the demonstration that when the term "available carbohydrate" is used it should not be supposed that availability has any constant significance. First of all it was found that the mere ingestion of 250 c.cm. of water on three separate occasions raised the consumption of carbohydrate from basal levels of 7 to 11 grammes per three hours by as much as 6 grammes per three hours. It is not stated whether the water given was cold or hot, a point perhaps of some significance. As the amounts of the various articles of diet given in these experiments varied, comparable results for increased carbohydrate combustion were obtained by recalculating the latter for the case in which the amount of available carbohydrate would be 25 grammes. Applying this calculation, it was found that the rise in carbohydrate combustion during three hours for amounts of certain foods corresponding to 25 grammes available carbohydrate was no greater than would have been obtained with 250 c.cm. of water. Such foods were boiled rice, boiled macaroni, white raw potatoes, and nuts of various kinds. Boiled parsnips, beets, and carrots gave very marked increase in carbohydrate combustion in the three-hour period; white bread, dates, and figs gave increases of the same order. (It was found that, whereas raw carrots gave a greater rise than boiled carrots, the reverse was the case with white potatoes; this is perhaps explicable on mechanical grounds.) The time course of the rise in carbohydrate

[1] *J. Nutrit.*, 1940, **19**, 593.

[2] *J. Nutrit.*, 1940, **19**, 415, 423.

combustion (determined at fifteen-minute intervals) showed that cane sugar or dates give a very sharp rise, but a rapid fall to pre-ingestion levels. Glucose gives a much smaller and less acute rise, but a higher level was maintained for a much longer time. Boiled beets, boiled parsnips, boiled and raw carrots, all combined large and acute increases with maintenance at elevated levels throughout the three hours of observation. Although the results obtained with these various foods are perhaps not unexpected, it is important that such experiments should be extended. The practitioner recommending a diet, most often qualitatively, should have a picture before him of availability of carbohydrate in foods based not only on the bare bones of chemical analysis but also on the actual availability to the organism when fed.

As to the so-called unavailable carbohydrates, the commonly held view has been that the human subject is unable to cope with them enzymatically and that their excretion is a matter for bowel action. But that in certain circumstances these unavailable carbohydrates can disappear from the alimentary tract is indicated by some recent work of Shepherd, Hummel, and Macy.[a] They point out that the digestibility or disappearance of fibre (that is, the part containing cellulose, hemicellulose, and lignin) from the digestive tract of man is very variable, and depends to some extent on its content of cellulose and hemicelluloses (lignin apparently not being digested at all) and upon the presence of bacteria in the alimentary tract. The authors studied the metabolism in children aged 5 to 8 years under controlled conditions for periods of thirty to fifty days. The daily diet was then altered. During the control periods the diet included 100 grammes of apple and 100 grammes of banana, or 200 grammes of apple only. During the experimental period 100 grammes of banana a day were added in one group; 100 grammes of banana were added and some bread and "cereal" removed in another; and in a third group 100 grammes of banana and a certain amount of potato, butter, and white bread were added. Adding banana to the diet increases its lignin content, and changes the quantities of both cellulose and hemicellulose in the gut; banana also increased the amount of pectin in the diet, and it is stated that this seems to have unique physiological value in stimulating better utilization and passage of intestinal contents, produces a more satisfactory buffer action, and effects a change in the bacterial flora in the faeces. The proportion of the cellulose and hemicelluloses in the diets was determined and an estimate made of the amount disappearing from the intestine. Thus of 112 mg. of cellulose per kilogramme of body weight in the control period of one group of children 81% disappeared, and of 119 mg. hemicellulose per kilogramme 63% disappeared. These percentages were maintained even after the daily addition of 100 grammes of banana. There was wide variation in the percentages disappearing in different individuals, and these are held to be characteristic and dependent upon the proportions of lignin, cellulose, and hemicellulose in the daily diet rather than upon the total amount of fibre ingested. Whether these very considerable disappearances of "unavailable" carbohydrate have any physiological significance is not clear, but the authors suggest that there may be a protein-sparing action and that the character of the fibre (that is, the ratio lignin: cellulose: hemicellulose) may have dietetic importance.

[a] *Amer. J. digest. Dis.*, 1940, **7**, 248

PHYSICAL MEDICINE, ORTHOPAEDICS, AND THE SERVICES

The field of activity claimed by those who practise physical medicine has been cursed by many cumbrous names; moreover, the subject is not "understanded of the people," and little comprehended by the profession at large. There are adequate reasons for this. First, the methods used by those who specialize in it do not form a real part of the training of students; secondly, the apparatus employed lends itself all too often to a blatant form of quackery, thus spreading disrepute far and wide. Then, again, the majority of these methods are available, through the medium of medical auxiliaries, to practitioners by merely sending the patient "for massage" or "for electrical treatment," leaving the choice of method and technique to the trained—but not medically trained—technician. When such treatment gives good results the practitioner is apt to infer that technical knowledge on his part is superfluous and that the help of an expert colleague is even less necessary. Poor results are blamed on the apparatus used—whether ultra-violet light, short wave, or mobilizing exercises—without regard to the possibility that the method that has proved unsatisfactory might never have been employed in that way if experienced medical supervision had been invoked.

As a corollary to these facts there has arisen some dissension between the specialist in physical medicine and the orthopaedic surgeon. Orthopaedic surgeons have been heard to claim that they are capable of seeing their cases through from beginning to end, and that unless they can do so their results are handicapped or even completely marred by the "interference" of the physical medicine specialist. The consultant in physical medicine for his part has been heard to say that the orthopaedic surgeon makes no attempt to evaluate, in close collaboration with him, other methods, and that he, the orthopaedic surgeon, has inadequate knowledge of the various means employed in physical medicine. This disagreement between the two branches is unnecessary and hinders progress. A glance over the field of those who practise physical medicine, whether in spas, by expert prescription of massage and medical exercises, by occupational therapy, or by the more direct physical methods of electrical currents, will make it clear that their work is the medical counterpart of the orthopaedic surgeon's. If consultants in physical medicine were regarded as "orthopaedic physicians" their field of activity would become clear, and their function in relation not only to orthopaedic surgeons but to the whole medical profession would drop into its proper place and perspective. Their advice, special knowledge, and collaboration could be sought without fear of trespass or overlap. It is satisfactory, therefore, to note that the Director-General of Army Medical Services has realized the importance of this branch of practice by the appointment of a Consultant in Physical Medicine with the rank of a higher consulting officer. The duties attaching to this new post go further than advising and helping in the physical treatment of injured soldiers and convalescents. The Director-General has, wisely, looked to the knowledge of function and movement possessed by this adviser to help and guide him in the conditioning of recruits, especially those with physical handicaps who are amenable to intelligent re-education and remedial exercises. The consultant and his chosen team are available to help those whose special duty

it is to train the recruit forward into fitness and hardness. Here indeed is a means for joint work in preventive medicine and one that should promote close and warm liaison between our profession and the commanders in the field. With such an organization in effective operation the orthopaedic surgeon could feel assured not only that his results will not be marred, but that they will be improved, thus freeing him from anxieties about the final stages of treatment and enabling him to concentrate upon the vast surgical problems that already face him.

It will be interesting to watch the fruits of the new appointment and of the policy behind it, and see whether the other Services follow the lead given by the Army. A point to look out for, when the time comes to assess results, is whether this new move has practical value in active war areas also, especially in places such as the Middle East, where problems of evacuation are difficult and every man returned to the firing line means so much saving of time and transport. The appointment of a Consultant in Physical Medicine to the Army, with a well-defined field of activity, means also the freeing of his branch of work from radiology, and this should be welcomed by the radiologist, to whom physical medicine is a secondary subject with which he does not claim to be fully conversant. The movement towards giving a status of its own to physical medicine is in harmony with the opinion of a special committee of the British Medical Association, whose final report was under review, in consultation with Lord Dawson's medical committee of the National Physical Fitness Council, when war broke out.

TREATMENT OF SEVERE DIPHTHERIA

The war has given a great stimulus to preventive medicine, and as a result of well-directed propaganda active immunization of children against diphtheria has been carried out on a larger scale than would have been expected in peacetime. But still more effort is needed, and we should not rest satisfied until over 75% of the child population is protected against an infection that takes an annual death toll of some three thousand lives. Early treatment is vital for those who are infected; it is almost axiomatic that patients do not die if given enough antitoxin within twenty-four hours of the onset of the disease. Yet every superintendent of an isolation hospital can tell of admissions two, three, or more days after the onset of illness —or, for that matter, well after the first visit of the doctor. Antitoxin is often of no avail in these late cases, especially in those in which the *gravis* bacillus is present. Dr. O'Meara[1 2] and Dr. McSweeney[3] think there may be an explanation, and, what is more, a way of improving this situation. O'Meara believes, on the evidence, that most or perhaps all commercial antitoxin has a low "avidity" for diphtheria poison—that is, when it meets and unites with the diphtheria toxin in the tissues of the patient the bond of union is not a firm one and may be quickly or easily dissolved, thus allowing ordinary toxin as well as other poisonous principles not hitherto recognized to spread and overwhelm vulnerable tissues. McSweeney obtained from the Wellcome Laboratories some special antitoxin of conspicuously high "avidity," which he tells us contained an unusual amount of antibody or antitoxin to the second poisonous principle postulated by O'Meara. With this antitoxin McSweeney treated sixteen patients suffering from severe diphtheria—Grades 3 and 4. The death rate for these two grades has been 25% in Dublin in the past; in McSweeney's group it was 6.2%. Unfortunately the figures are very small; an arithmetical calculation would seem to indicate that if successive groups of sixteen patients in Grades 3 and 4 were treated with ordinary antitoxin, about one in each twenty groups would yield fifteen recoveries. It is true that this argument does not cover the whole ground, for McSweeney out of his long experience says that he has never before seen patients in Grades 3 and 4 show such happy progress —absence of cardiovascular failure, rapid clearing of throat, absence of albuminuria, few paralytic sequels, rapid disappearance of bull-neck, and absence of failure of blood pressure. Obviously he and others will make every effort to treat many more patients with similar antitoxin. Here an unfortunate difficulty arises, for McSweeney states that the avid serum he used was not produced by any special methods of immunization, or by any alteration of inoculation of horses based on the use of O'Meara's second toxin. McSweeney informs us that avid serum cannot be produced at will and supplies are not obtainable. The papers will attract much attention, and we shall have to wait for confirmation by O'Meara and others that *gravis* cultures from many centres will produce in guinea-pigs the picture of hypertoxic diphtheria described by him and that this can be cured by avid antitoxin. If further trials repeat the results presented by McSweeney there will remain to be discovered a method of producing avid antitoxin.

[1] *Lancet*, 1941, **1**, 205.
[2] *British Medical Journal*, 1941, **1**, 374.
[3] *Lancet*, 1941, **1**, 208.

EMERGENCY LIGHTING AND POWER FOR HOSPITALS

The need for an emergency electrical generating set in hospitals has been forcibly illustrated since the air attacks on large cities began. Even if a hospital is not itself damaged its work may be seriously hindered when the main supply is interrupted. Economical automatic devices for stand-by equipment for lighting only have been mentioned in these columns, but to supply both power and light to a large institution is a much bigger problem and necessarily more expensive than fitting up an alternative plant for the lighting of a first-aid post, an operating theatre, or a control room. A medical man who can speak with authority on this subject, having visited a great many hospitals in different parts of the country, informs us that only a few hospitals have emergency generating sets. There are examples on the South Coast and in the Midlands. In these the set was installed primarily to supply the *x*-ray services and was inspired by the radiologist in charge, but as events have turned out it proved to be to the benefit —in one instance the salvation—of the entire hospital. These hospitals were damaged and the mains supply cut off, but the temporary set did excellent work and enabled the hospital to carry on. The energy-generating set in one of them consists of a 20-h.p. paraffin engine driving a 10-kilowatt three-phase 400-volt generator through a flex belt drive running at 400 revolutions per minute. The engine exhaust is led into an old chimney stack, and the cooling is brought about by means of two 250-gallon tanks of water and a circulating pump. The mains cable-ends from the meter are diverted from busbars—by which is meant the conductors on a switchboard to and from which the various circuits run—to a tripole change-over switch, and one side is fed back to the busbars and the other to the emergency set. The total cost of this installation—the set itself having been bought second-hand for £300—including the tanks and switches and the expense of installation was £360. The test of the

equipment came on a night when the town was heavily raided. The emergency set was in operation within ten minutes and maintained the necessary lighting of the hospital and working of the lifts, as well as serving the *x*-ray mobile unit and other plant. During the raid the hospital itself caught fire, and over a hundred patients had to be evacuated, a task which was only made possible by the working of the lifts. Much valuable equipment was also moved from parts of the building on fire, including most of the *x*-ray and operating theatre equipment, and this again was only possible by the emergency lighting and power provided. On subsequent occasions the lights failed, and each time the emergency set stood up to a heavy night's work, and kept things going until the mains came on again, in one case not until forty-eight hours after the first interruption. The same hospital also suffered from damaged water mains, but on the day following the raid the boilers, which are fired by electrically operated mechanical stokers, were started and fed from reserve water, and a temporary water supply was provided for the hospital, which enabled emergency treatment and (gas also not being available) cooking by steam to be carried on. The laundry at this hospital is electrically driven, and half of this could be used while the mains supply was out of action. The cost of the installation may make a hospital board hesitate, but it might prove to be an economy in the case of hospitals in vulnerable areas.

WARTIME STREET LIGHTING

A most excellent report on "Fundamental Requirements underlying the Wartime Street Lighting," prepared for the Joint Committee of the Ministry of Home Security and the Illuminating Engineering Society, is summarized in a recent issue of the *British Journal of Ophthalmology*.[1] Note is made of the amazing range of human vision according to the lighting, from summer sunlight to faint starlight, a range of about one hundred millions to one. Dim light presents serious difficulties owing to the sudden movements of persons from brightly lighted rooms, from exposure to lights in the outdoor dimness, and because of the peculiar reactions of the healthy retina to dim light. Small objects cannot be seen with certainty and colour cannot be distinguished. The value of the dim street lighting of 0.0002 foot-candle depends entirely on the avoidance of factors apt to depress visual acuity. Change from lighted interiors to out-of-doors should be slow. Light-traps, besides their primary object of preventing escape of light from within, have a secondary field of utility in providing a period of adaptation. The next step is to avoid the presence of objects of undue brightness outdoors. Car headlights and traffic signals of a value exceeding the minimum for recognition inevitably give rise to some degree of glare. There seems good ground for the adoption of a value of brightness of the order of 0.05 to 0.1 equivalent foot-candle as a limit in streets. These limits have been independently determined with a view to restricting conspicuousness from the air. Lights on refuges and obstructions frequently offend by their glare, making it difficult to see outlines of adjacent objects. The Lighting Order on these lights is much higher than the proposed limit. Pedestrian torches offend because of the concentrated beam; a box with no lens giving a larger light area of low but even brightness would be much better. Stress is laid upon the high value of large-size white painting of obstructions, of walls and railings at crossings, of the vertical surfaces of kerbs, and the white paint on motor vehicles. All should have a greater area of whitening than now usual. This would give the eyes of passengers a better chance of seeing them. Isolated bright spots of light, such as luminous crosses on islands or rear lights of cars, make it almost impossible for the road-user to see what is beyond them. Experience has shown the high value of a uniform level of illumination with, so far as possible, no region of complete darkness. The measure of illumination provided by wartime street lighting, though so small, is of appreciable benefit, especially when applied on a wide scale. In this issue of the *Journal* is a paper by Mr. Bishop Harman on testing night vision. His plan of seeing groups of white disks and counting them is based upon the reaction of the normal retina to dim light. It may enable pedestrians to be sorted out—the relatively safe and the unsafe.

[1] *Brit. J. Ophthal.*, March, 1941, p. 125.

AMERICAN DOCTORS FOR BRITAIN

President Roosevelt's latest interpretation of the phrase "all aid for Britain" in his call for 1,000 American doctors to volunteer for service in the R.A.M.C. and the E.M.S. in response to an appeal from Sir Philip Chetwode, chairman of the British Red Cross Society, will hearten members of the profession in the country, wherever their work lies. As was pointed out in a leading article in these columns a fortnight ago (April 12, p. 509), the effect of the increasing demands of the Services and of the E.M.S. has been to deplete general practice to such an extent as to endanger the health services available to the civil population. The need for more medical men is a pressing one, and Sir Philip Chetwode in his appeal stated that up to 1,000 were "required to assist both the military and civilian medical services." American doctors under 40 years of age are asked to volunteer for service with the R.A.M.C. and those under 45 for the E.M.S. All will, of course, retain their American citizenship but will be accorded British registration as physicians and surgeons. The terms and conditions of service will be the same as those for their British colleagues, except that their pay will not be subject to British income tax. They will all be asked to serve for a minimum of one year. Mr. Norman H. Davis, chairman of the American Red Cross, in a statement issued in Washington on April 21, said that he was confident the response from the medical profession would be splendid and that many of those eligible would accept this opportunity for humanitarian service. The project has the approval of the President of the United States, the Secretary for War, and the Surgeons-General of the Army and Navy, as well as the Surgeon-General of the United States Public Health Service. In dealing with the applications the American Red Cross is to have the assistance of the Division of Medical Sciences of the National Research Council, the American Medical Association, the American College of Physicians, and the American College of Surgeons. At a Press conference in London this week Dr. J. E. Gordon, American liaison officer at the Ministry of Health, said he felt sure of the welcome that American doctors will receive from their British colleagues; and Mr. Ernest Brown, Minister of Health, in a message which was read by Sir Wilson Jameson, expressed the nation's thanks to Mr. Roosevelt for his "powerful support," and said that all those who joined us would receive a warm welcome and would form an integral part of our own services.

Prof. W. W. C. Topley, M.D., F.R.S., who holds the chair of bacteriology and immunology in the University of London at the London School of Hygiene and Tropical Medicine, has accepted the appointment of Secretary to the Agricultural Research Council.

TESTING NIGHT VISION

BY

N. BISHOP HARMAN, F.R.C.S.

"Test for Night Vision" is the title of a seven-page booklet[1] by Dr. W. D. Wright, lecturer in physics in the Imperial College of Science and Technology, which accompanies a test designed by him. Dr. Wright's experience as a physicist makes his consideration of the problem of night vision valuable. He writes:

"The ability to see in the dark varies from one individual to another. In normal times a test for night vision is of value as an indication of under-nourishment, as a means of measuring the development of certain visual diseases, and in connexion with scientific investigations on vision. In time of war it is important that all should know how well they can see in the dark, for both their own lives and, if they are motorists, those of other people may be at stake unless they adjust their activities in the black-out to suit their ability to see under these conditions."

There is no doubt of the truth of this statement. But in this country, at any rate up till now, experience has shown that ill nourishment has been of secondary influence in comparison with certain eye defects in diminishing the ability to see at night. But that does not affect the value of any test in these times.

Dr. Wright's apparatus is a simple one. At the ends of a baseboard measuring 8 in. by 6 in. are hinged two other boards which will stand upright. One is a support for the test cards; the other, on the side away from the patient's eyes, has a disk an inch in diameter covered with a luminous radium compound which gives a faint glow of light that serves to illuminate the test cards. These test cards are black. On each is one letter **C**, $4\frac{3}{16}$ in. in diameter and 5/8 in. in breadth of limb. These letters are of varying shades, from pure white to a dark grey that is almost black. There are nine grades. It is recommended that the person to be tested should remain in the dark for fifteen minutes. Then the cards are exposed to the radium glow and examined at a distance of 12 inches. The test lies in the ability to see the gap in the circle of the **C**; whether this is upwards, downwards, to the right or the left. Dr. Wright has tested some 300 persons: 49% could see No. 7; 20% No. 6; 6.5% No. 5; and about 1.5% the faintest, No. 9. Young persons see better than the older.

Practical examination of the test confirms these findings. But certain criticisms arise from this examination: (1) It is evident that the radium illumination may be variable. There can be nothing "standard" about it. (2) The hands of the examiner when shifting the cards are disturbing to the examinee; this is easily prevented by the use of black suede gloves. But worse than this is the fact that examination of the more difficult cards is hindered by a sheen from the smooth black of the cards and the baseboard. (3) The test is made at 12 inches, whereas long experience of eye men has shown that any standard vision test should not be at a less distance than 5 or 6 metres.

Some years ago I made a number of tests of the light sense of patients suspected of tobacco amblyopia. The fields of vision were mapped out in varying illumination. The method was found effective.[2] Since then I have tried other light tests. The aim has been to use a standard illumination and a test that would need a minimum of visual acuity or form sense. A standard candle—i.e., a candle burning 120 grains in an hour—is easily got, and it does not vary. By fitting this candle inside a box (somewhat like a child's toy magic lantern, but with no lenses, a wider "snout," and the inside painted dull black) we obtain a standard beam of light which will illuminate with a glow the usual Snellen test card from a distance. Since the letters on Snellen's test require both sight and knowledge of letters I used my revolving **E** test. (This was designed for use in infant classes. There is one **E** on each line, and each is mounted on a pivoted card so that it can be turned to any position. The child is told to look at the three fingers of the "hand" on the card, and put his own hand in the position of those fingers.)

When, in a dark room, the boxed-in candle-light is placed alongside the patient at a distance of 5 metres from the **E** test card, the light on the card is only 1/269 of a foot-candle. Yet a normal-sighted subject in the early thirties who could see 5/5 easily with the normally lighted test could see with the candle-glow 5/20 and occasionally 5/15.

In both tests—Dr. Wright's 12-inch **C** and the 5-metre **E** cards—it was noted that by a little legitimate dodging it was possible to get better vision than straightforward looking gave. If one looked a few inches away from the test card, above, below, to the right or to the left, it was possible to see the gap in the **C** or the **E** better. It is well known that the light sense of the retina away from the macula is better than that at the macula. In a sense this is a criticism of all night-vision tests, for we can see better than the record of a direct-vision test will show.

Latterly I have used a still simpler distance test card[3]—one that I think needs a minimum of form sense, and therefore one that relies almost wholly on the light sense, though still at the macula. The 5-metre distance test card is a board a foot square. This is covered with black velvet. The test objects are white disks half an inch in diameter, from four to seven in number, fixed on the velvet, each an eighth of an inch separate from the others.

On the board are four separate groups of white disks, each of different numbers, but arranged so as to suggest a common pattern. The groups are covered by another velvet-covered disk in which is a 3-inch hole. This cover is pivoted so that it can be turned to expose any of the four groups of white disks. The baseboard has a hanger at each corner, so that it can be hung four ways. This gives sixteen variations of the test. Before testing, the patient should be in the dark for fifteen minutes or, more conveniently, have a black velvet band clipped round the head so as to cover the eyes. Distance glasses, if needed, must be worn during the test.

The candle-box is fitted at 5 metres from the test card, so that the test is lighted by 1/269 foot-candle. The light that reaches the patient's eye is much less: ignoring loss by reflection, 1 m. from the test = 1/393; 2 m. = 1/527; 3 m. = 1/688; 4 m. = 1/871; 5 m. = 1/1075; 6 m. = 1/1302 of a foot-candle. The room is dark except for the candle rays. The patient stands beside the candle-box and looks towards the test card. A group of white disks is exposed. Most can see the massed white blur, and many can count the number of disks at 5 metres. A few can count at even 6.5 metres. If the patient cannot count at 5 metres he steps forward a foot at a time until he can count the disks. By recording the position of patients in half-metres thirteen grades, from 6.5 metres to 0.5 metre, are obtained. The average of four trials is enough usually. The value of this test is shown by the maximum distance at which one can both see and count the separate white spots. I find a fair average for normal-sighted persons is 5 metres. Those with 4-metres range should be safe at night. Those with 3-metres range or less had better stay indoors. Night-flying men should have a range of at least 6 metres.

It was of interest to check the relation of these indoor tests with outdoor conditions. One night after half an hour in the dark with these tests we stepped into the open air. The night for a moment seemed brilliant by contrast. Yet it was a dark night. There was a slight high mist; a few stars were to be seen, but no moon. There was so little light that with the **E** test the vision of normal persons (with 6/5 full-light vision) ranged only from 1/50 to 3/50. Yet it was easy to walk about, though the ground was on different levels and there were steps.

Experience shows that variations in night vision do not depend wholly upon a light sense. Apart from this there are many conditions that diminish night vision or vary it. Chief among these are: (1) the size of the pupils; (2) the

[1] "Test for Night Vision," designed by W. D. Wright, D.Sc., A.R.C.S., made by the Pitman Press, Bath. London: Sir Isaac Pitman and Sons. (25s.)
[2] *Lancet*, 1904, **2**, 821.
[3] Disk Spotting Night-vision Test, made by Theodore Hamblin, Ltd., 15, Wigmore Street, London, W.1.

condition of the crystalline lens; and (3) the retinal integrity. Young folk, with their larger pupils, get more light into their eyes than older folk. This was well demonstrated by a doctor colleague: he had vision of 6/5 in each eye; the left pupil was larger than the right, and the left eye did better with all the night tests. Another colleague showed poor night vision; this was due to lens opacities, even though in normal light the vision was 6/9. Retinal disease has a serious effect upon the light sense; even excessive smoking affects the retina and reduces the night vision.

A paper on testing fitness for night vision[4] and another on night blindness[5] give detailed consideration of variations of sight, and include full biographies. The Report on Wartime Street Lighting (see p. 635) should be considered in this connexion.

There is no doubt that tests for night vision are of use. Dr. Wright has done good service by his designing. But some standard test that could be set up by an ophthalmic surgeon for himself, and yet would be the same for all, would serve still better.

AIR-RAID SHELTER POLICY

VIEWS OF A DOCTOR AND AN ARCHITECT

A Chadwick Lecture on air-raid shelters was delivered on April 8 jointly by Dr. S. L. Wright, who discussed hygienic considerations, and Mr. Philip O. Reece, an architect, who dealt with design and construction. Dr. WRIGHT said that large shelters raised problems of hygiene most difficult of solution, chief of which was the spread of communicable disease, whether air-borne (which was the most important) or by direct contact, inanimate objects, or insect vectors. In hospitals for infectious diseases the only effective method of countering droplet infection was to nurse the patients in separate cubicles. It was out of the question in shelters to provide cubicles for each person, but he suggested that a cubicle should be provided for each family unit, with the ventilation so arranged that the air from one cubicle could not enter another. The edges of the bunks should be at least 3 ft. apart, and the air turnover the maximum possible. The walls and floors should be smooth-finished so that they could be mopped down and dusted, the furnishing and bedding should be retained by the family and used only by them, and the cubicle be disinfected for new occupants.

A method of sterilization of air had not yet been discovered which, while completely innocuous, would bring the enclosed atmosphere up to the standard of fresh air. Air should approximate in standard of purity to the standard now expected in water supply, instead of being something equivalent to a sterilized sewage effluent. Spraying would be sufficient in corridors, sanitary annexes, and canteens. There was a danger of infection in the use of common sanitary conveniences, which could be met by proper supervision, an adequate supply of wash-basins, and elimination of the common roller towel. The necessity for washing the hands after visiting the lavatory and before eating must be emphasized. The habit of undressing at night, which would be possible in family cubicles, should be encouraged as a means of dealing with the problem of infestation.

One reason why not all people brought into contact with infection developed disease was the state of the general bodily health, closely related to the mental attitude, so that without undue exaggeration it might be said that in resistance to infection the dirty but cheerful were as safe as the clean but miserable. To encourage cheerfulness the shelters should be lighted to a reasonable standard—not less than 3 foot-candles in corridors, 4 to 5 in cubicles, 4 to 6 in sanitary annexes, and 7 to 9 in the canteen or communal dining room. Cubicles gave unlimited facilities for sick bays, medical officer's surgery, and first-aid points. Those in charge of aid posts would be the first to admit that without the sanitary provisions he had described their work was little more than a placebo. Although the last winter had been got through without epidemics, the same immunity might not persist. Pestilence followed in the wake of war and famine, and when it started could not be confined within national boundaries, so that all the weapons of environmental hygiene would be required.

Mr. P. O. REECE, from the architectural point of view, developed Dr. Wright's theme further. He said that in eighteen months of war shelter ideas had run the whole gamut from the Anderson with its maximum protection and minimum comfort to the indoor Morrison with its minimum protection and maximum comfort. There was no universal form of shelter equally suited to all conditions. Even the most enthusiastic supporter of deep shelters would have to review his proposals on account of the time and labour required. Instead of designing shelters having in view the effect of bombs of certain weight falling at certain distances, consideration should be given to the disintegrating effect of earth tremors caused by bomb explosions, and it might be wise to follow the methods employed in designing earthquake-resisting structures, whereby a shelter free to slide on the surface would be inherently safer than one embedded in the earth. This ideal shelter would be multicellular in form, made of reinforced concrete, each block holding, say, sixteen cubicles and each cubicle accommodating six persons—a family unit—with the sanitary annexe at one end. Bunks would be supported between cleats embedded in the concrete, with a table between the tiers, and lighting would be so provided in the walls as to give light in each bunk, not to throw a deep shadow, as at present, into the bottom bunk. These blocks, with their sixteen cubicles for ninety-six persons, should be arranged in a radial fashion around a central eating room, which would afford the maximum centralization of services, with consequent economy in drainage, electricity, and water supply. Independent mechanical ventilation would be supplied to each block, and such a system lent itself to easy gas-proofing. In one block provision should be made for surgery and sick bay. The number of houses destroyed by enemy action would probably steadily increase, and the rehousing of homeless people was likely to become one of the major problems of domestic policy; again, the possible outbreak of epidemics would necessitate the isolation of large numbers of people; and, thirdly, imminent threat of invasion would entail movements of troops to areas where extensive accommodation was not available. All these requirements, as well as mere protection against air attack, might be met by this type of shelter. Once constructed, the shelters could be set apart for any of these uses as circumstances might require, and even as they could be adapted during the war for a number of uses, they could be designed for the fulfilment of useful purposes after the war. Smaller shelters with four or eight cubicles could be constructed on the sites of demolished houses and converted into new houses when the war was over, while larger shelters would lend themselves to conversion as sports pavilions, club rooms, and for use for the increased social services that would be demanded when peace came. It was estimated that these shelters could be built for approximately £9 10s. per head—the estimated cost of the present mostly unsatisfactory shelters. Only cement, steel, and shuttering need be considered in their construction.

[4] Ferree, C. E., and Rand, G. (1938). *Arch. Ophthal.*, Chicago, **20**, 58.
[5] Tansley, Katharine (1939). *J. Ophthal.*, **23**, 161.

A. B. Baker (*Amer. J. Path.*, 1941, **17**, 39) concludes that in cases of long-standing hypertension there is very little structural alteration in the average small cerebral artery, while the larger arteries often show arteriosclerotic changes with marked narrowing of the lumen. He believes that the narrowing of the larger vessels reduces the wear and tear on the smaller ones. In so-called "malignant hypertension," however, there are extensive changes in the small arteries, the elastica interna becoming reduplicated and the media undergoing rapid fibrosis and patchy hyalinization.

VEGETABLES AS FOOD

CONFERENCE OF NUTRITION EXPERTS

The third of a series of discussion-meetings organized by the Nutrition Panel of the Food Group of the Society of Chemical Industry was held at the British Medical Association House, London, just before Easter, with Sir E. J. RUSSELL, F.R.S., director of the Rothamsted Experimental Station, in the chair. Previous discussions had been on the merits of cheese and of the potato; this time it was on vegetables.

Chemical Composition of Vegetables

Dr. M. A. PYKE described the chemical composition of vegetable foods. The fat present in green vegetables, he said, was too small to affect the calorific value. In carbohydrate content, cabbages, cauliflowers, broccoli, spinach, and lettuce all contained less than 2%, roots from 2 to 10%, and legumes headed the list with 10 to 18%. With the exception of beetroot, spring onions, and parsnips, all vegetables might be classed as protein foods, but the low percentages were against their use as a major source of protein. As for minerals, green vegetables were the carriers of quite useful amounts of calcium, the richest vegetable in this respect being spinach. Mineral content varied in different varieties of the same vegetable and even in different parts of the plant. Thus the outer leaves of cabbage were richer in calcium than the inner. In respect of vitamins, β-carotene was present in green leaves in relatively large quantities. Green vegetables did not provide large amounts of vitamin B_1; dried pulses were a richer source of this vitamin. There was practically no vitamin D in vegetable foods, but they were an important source of vitamin C. Broccoli headed the list in this respect, and brussels sprouts were extremely good. The high vitamin value of mustard and cress was worth mentioning, especially as this plant could be grown by town dwellers. Asparagus and celery were of low nutritional value. Mushrooms formed a class by themselves, containing small amounts of the principal vitamins. Vegetables were primarily protective foods, and the principles to bear in mind in production and treatment were to choose crops which would yield the maximum amount of vitamin content per acre, and to destroy as little vitamin as possible in storage, preparation, and cooking.

Planning Vegetable Production

Dr. H. V. TAYLOR said that a rough estimate of vegetable production in this country was 3,000,000 tons, which, divided among the population of above 5 years of age, would give 45 oz. a head a week. The Scientific Food Policy Committee set up at the beginning of the war suggested that in order to maintain health the average consumption should be 6 oz. of vegetables a day; it appeared that there was a quantity available slightly in excess of this recommendation. But it must always be borne in mind that vegetables were foods, which meant that people must like them, otherwise there was no point in growing them. A deputation of growers had complained that the planting of brussels sprouts was wasteful, comparing the acreage yield with that of cabbage; but brussels sprouts were appreciated by the public, whereas cabbage was only tolerated, and sprouts were more nutritious, and did not disappear, as cabbage did, with a bad winter. When the war broke out a survey was made of crops regarded as useless from a nutritional point of view; but, with scarcity of meat supplies, some of these plants had to be restored for their flavouring value. Onions were the lowest of vegetables from the nutritional point of view, but 15,000 acres had to be apportioned to them, and altogether 80,000 acres had to be devoted to crops which the nutrition expert would condemn, simply on account of their flavouring value for the drab wartime meal. Nobody had attached much importance to pickles, but pickles were surprisingly popular among Service men. The materials for making pickles in the past had been imported from over-seas, but now a big acreage of land had to be set aside for this purpose. Of the nutritional value of the carrot experts were convinced, and there was a record crop last year of 380,000 tons as against a normal 180,000. But at first carrots were not very popular, and special measures had to be taken by the Ministry of Food to recommend the carrot, with the result that during the last three months the consumption had been 50,000 tons a month, or double the rate of peacetime. As for peas and beans, unless the production of this group was very much expanded the consumption must be much lower than normal. It had been arranged to increase the production of dried peas by 45,000 acres. In normal times one-third of the supply of tomatoes was raised in this country, one-third came from the Channel Islands, and one-third from the Canaries. In view of the loss of the Channel Islands and the difficulties of shipping, steps had been taken to convert greenhouses devoted to flowers to the production of the tomato; an additional 15,000 tons was being raised this year, to be followed by another 15,000 tons next year. The consumption of cauliflower and broccoli was 430,000 tons, an average of 8 oz. a head a week. The conclusions he drew as a planner of vegetable production were that it was impossible to settle the planning on the basis of one or other character of the vegetable; to select only those which the nutritional expert said were the best and to ignore popular preferences would be quite wrong.

Effect of Cooking on Vitamins

Miss M. OLLIVER, in dealing with the effect of cooking on the nutritive value of vegetables, said that the housewife should have the vegetables fresh, if possible from her own garden. Waste must be avoided; to throw away the outer leaves was to destroy valuable material. Roots should be cut very thin or scraped. Green vegetables should be boiled fairly rapidly, using the minimum quantity of water, and the material should not be kept hot. Roots could be boiled, baked, steamed, or fried; salt should be added as it made the vegetable more palatable, and soda used with caution. As to the effect of cooking upon vitamins, carotene was relatively stable and also insoluble in water, and fairly good retention might be expected. The main loss of B_1 seemed to be due to the extraction into the cooking water, B_1 being easily soluble. In most diets, except for cooked vegetables, people did not get vitamin C at all. In times of peace vitamin C was supplied by canned foods and oranges, which were now scarce. It had been said that vitamin C was easily destroyed, but in her experimental work she had found that destruction by boiling was very small. Extraction, however, was great, and only about one-third was retained. There was greater retention with green peas and brussels sprouts than with cabbage or kale. It was possible to get one's normal requirements of vitamin C in one helping of greens if they were cooked under proper conditions, but housewives should be encouraged, if they boiled green vegetables, to retain the cooking water and use it for soups. The retention of ascorbic acid was much higher when the vegetables were steamed, though there were disadvantages in that method on the score of palatability. There was rapid destruction of ascorbic acid with continued cooking or keeping hot. Within forty minutes only about 60% was retained, and after about an hour and a half only a very small proportion.

Effect of Canning

The final paper, by Mr. W. B. ADAM, was on the effect of canning on nutritive value. Loss of nutrient value in canned foods, he said, might occur at any stage of the journey from the field through the cannery to the table, especially during the operation known as blanching, which resulted in some loss of vitamins B_1 and C. There was slight destruction of vitamin C during storage. Canned food diet gave results which were similar in all respects to those obtained from shop-purchased home-cooked food. The vitamin B_1 content might be slightly less than in home-cooked vegetables, but in vitamin C the canned vegetable might be superior.

The CHAIRMAN pointed out that in the change of diets in wartime practicability was the governing consideration. Vegetables could not form an entire diet—they did not, for example, supply any important fat constituents—but leafy vegetables supplied a protein of value at a time when there was a shortage of first-class proteins in cheese and meat. The protein of the green leaf was associated with a good deal of cellulose, which could not be very easily digested, but there was a case for studying and separating this protein from the rest of the constituents of the green leaf. Fruits did not compare with vegetables for nutrients, which was reassuring at a time when a good many gardens and nurseries were being

turned over from fruit to vegetables. In the change-over of diet whereby enlarged amounts of some foods became available and diminished amounts of others, the treatment of food by cooking or canning became of greater importance.

The earlier discussions were reported in the *Journal*, on the potato, November 23, 1940, p. 717, and on the composition of cheese, December 14, 1940, p. 838.

CANCER RESEARCH

WORK IN PROGRESS

In the past an important feature of annual reports of the Imperial Cancer Research Fund has been the Director's critical remarks on matters of current interest in cancer research. This feature, as many will regret, is absent from the most recent report,[1] that for 1940–1, the scientific section being now more strictly limited to the work of the Fund's own laboratories. Nevertheless, it is still possible to glean much concerning the present outlook of the staff of this the oldest of all institutes dedicated solely to the study of cancer. Much of the work is of general interest.

Brief mention is made of a paper by Dr. L. Foulds ("The Histological Analysis of Tumours: a Critical Review," *Amer. J. Cancer*, 1940, **39**, 1), which many have regarded as of considerable importance. The paper deals in a very thoughtful way with influences which determine what structural characters shall be exhibited by different tumours. It relates the relevant facts and discusses the relative parts played by tumour cells and by host tissues. In the past, histological studies have constituted a very prominent part of the activities of the Fund, and it is evident that such studies are still thought, and found, capable of yielding fundamental knowledge of cancer.

Carcinogenic Hydrocarbons

It will be remembered that Dr. B. D. Pullinger began a study of the very earliest changes which are induced in mouse skin by carcinogenic hydrocarbons and that she described cellular characteristics which, appearing as early as the third or fourth day, seemed to be a specific response to the presence of these carcinogens. She has now extended her investigations. Two more carcinogenic hydrocarbons have been examined and the cellular effects of both have proved essentially similar to those of the carcinogens previously tested, whilst in a further series of control non-carcinogenic substances not one has produced other than quite non-specific changes. A singular fact shown by the more recent experiments is that the potency of carcinogenic hydrocarbons as judged by early effects on mouse epidermal cells does not always run parallel with relative tumour-producing potency. The significance of the characteristic early changes is not discussed, and one is left with the impression that Dr. Pullinger is not as yet prepared to claim that they are themselves of cancerous nature.

Mr. H. G. Crabtree has continued his effort to find how far the application of compounds which alter the metabolism of the cell by inhibiting glycolysis can influence the induction of skin cancers in mice by carcinogenic hydrocarbons. One experiment may be mentioned. In it a preliminary period of painting with benzpyrene was followed by a period during which chloracetone was applied. At the twenty-ninth week there were, in the thirty mice treated in this way, eighteen growing tumours, of which eight were epitheliomas; whereas in the control group treated with benzpyrene alone three small papillomas were all that could be found. This result recalls a phenomenon recently described by Rous and Kidd, who tarred the ears of rabbits and found that cells of papillomata which had regressed and disappeared after tarring had been discontinued might again become active, even to the exhibition of fully malignant characters, under the influence of conditions usually regarded as non-carcinogenic—painting with turpentine, for instance.

The problem facing Dr. R. J. Ludford has been to find why carcinogenic hydrocarbons which produce cancers in the living body seem not to induce malignant change in cells grown in tissue culture, although, as he himself has shown, filtrates of fowl sarcomas will readily induce malignant change in tissue cultures of fowl fibroblasts. Under the impression that technical procedures may possibly have been at fault many improvements have been effected. For instance, Dr. Ludford has now used cells taken from closely inbred strains of mice, because when such cells are inoculated into other mice of the same pure strain antagonistic reactions are minimal or entirely absent. Cell cultures have been treated with 3:4-benzpyrene or with methylcholanthrene over periods varying from a few days to six months, but all with entirely negative results; inoculation into mice has failed to produce tumours. Cytological studies of the treated tissue cultures have been made and many derangements of cell division have been observed, but nothing really suggestive of malignant change has been seen. The problem remains and the work continues.

Virus Tumours of Fowls

Study of virus tumours of fowls has not been shelved. Dr. W. J. Purdy, who is seconded from the National Institute for Medical Research, has studied Fujinami tumours growing in ducks and has reached conclusions similar to those recently announced by Dr. Kidd of the Rockefeller Institute, who studied the Shope papilloma growing in domestic rabbits. Both workers find that when several separate tumours are growing in an animal all tend to retrogress simultaneously if they retrogress at all. It is thought that such simultaneous retrogressions can be co-ordinated only by something circulating in the body fluids. At the time the Fujinami tumour retrogresses (a phenomenon characteristic of this tumour when growing in ducks) the blood serum of the host commonly fails to neutralize active filtrate of Fujinami tumour. Thus there seems to be no circulating anti-viral factor. This leaves the possibility of an anti-cell factor responsible for the co-ordinated retrogressions. Dr. Purdy and Dr. Ludford, working in co-operation, have used tissue-culture methods to investigate this suggestion. Cells of the Fujinami tumour were grown in plasma obtained from a duck in which a Fujinami tumour had grown well and then had just started to retrogress—a time at which the hypothetical anti-cell antibody might be expected to have attained its greatest potency—but the tumour cells grew just as well and liquefied the plasma just as readily as in control cultures. And so we are left with the probability that some elusive anti-tumour-cell influence may be present in the host and yet cannot be found by a method which would appear to be adequate.

Oestrogens and Pituitary Changes

It is known that when an oestrogen is used to produce mammary tumours in mice the general hormonal imbalance which results is accompanied by changes in the pituitary gland. Dr. E. Vazquez-Lopez is at present engaged in a detailed histological study of such changes. He has found that in these mice the pituitary changes are more widespread than has usually been supposed, appear throughout the organ, and are mainly of a character suggestive of hyperactivity. Changes originating in the pars intermedia may be specially mentioned. In the cells of this region the Golgi apparatus is greatly hypertrophied, a fact which is taken as an indication of increased secretory activity; there is increased migration of these cells to the pars nervosa, where their disintegration results in a correspondingly great increase in the number of Herring bodies; and the migration of these bodies to the tuber cinereum and the third ventricle can be traced with unusual ease. These Herring bodies, of course, are those granules which have been regarded as being, or bearing, the hormonal secretion of the posterior lobe of the pituitary.

It is known that both the activity of the anterior lobe of the pituitary gland and the character of the secretion can be changed by nerve impulses which pass by way of the central nervous system, but details of the nervous connexions are for the most part unknown. Dr. Vazquez-Lopez has now found in the horse certain bundles of nerve fibres which pass from the tuber cinereum to the pars tuberalis and thence, probably, to the anterior lobe. The nerve tract passing between the pars nervosa and the base of the brain is known, but Dr. Vazquez-Lopez has now shown that in the

[1] Thirty-eighth Annual Report, 1940–1. Published from the Office, Royal College of Surgeons, Lincoln's Inn Fields, W.C.2.

pars nervosa there are far more nerve fibres than has been supposed and that some of these pass into the pars intermedia. In both these regions he has demonstrated multitudes of nerve endings. These suggest a functional activity not fully appreciated hitherto.

Hortega cells have hitherto been thought to occur in all parts of the central nervous system with the exception only of the pars nervosa of the pituitary. Dr. Vazquez-Lopez, studying conditions in the horse, has now observed that in this animal Hortega cells do occur and, indeed, may be seen to constitute an important part of the architecture of the gland.

Co-operation in Research

In this 1940-1 report of the Imperial Cancer Research Fund it is pleasing to note once again the generous co-operation which exists between the various institutions devoted to medical research. Acknowledgments are found, for instance, that for gifts of chemicals Dr. Pullinger is indebted to Profs. Kennaway and Cook of the Royal Cancer Hospital; that Dr. Vazquez-Lopez is indebted to Mr. Glover and the Medical Research Council for provision of pituitary glands of horse, ox, and sheep; and that Mrs. Holmes is indebted to Sir Cuthbert Wallace and Mount Vernon Hospital for helpful collaboration in studies of the cause of the vomiting which sometimes follows exposure to *x* rays. Dr. Ludford of the Imperial Cancer Research Fund has co-operated with Dr. Emmens of the staff of the National Institute for Medical Research in experiments demanding expert knowledge both of tissue-culture methods and of endocrinology. The Fund has maintained its tumour strains and placed these at the disposal of workers in different parts of the country.

PHARMACEUTICAL SOCIETY CENTENARY

COMMEMORATIONS IN LONDON

The Pharmaceutical Society of Great Britain commemorated its centenary on April 15 by a meeting at Conway Hall, which was addressed by Sir John Anderson, Lord President of the Council. It was preceded by a thanksgiving service at St. Pancras Parish Church, at which the vicar of St. Pancras, the Right Rev. Bishop Crotty, was the preacher. In his sermon he said that the story of the Society was part of the much larger story of the development of modern medical science and practice from quite empirical beginnings. The history of medicine revealed an increasing differentiation of functions, originally quite confused and unrelated, into the stabilized and orderly activities of physician, surgeon, and apothecary. The Pharmaceutical Society was a section of the great team in the field of healing. By the standards it had upheld it had rendered a service not only to its members but to the community. It goes without saying that the lesson read at the service was the well-known passage from the 38th chapter of Ecclesiasticus.

The assembly later in the day was presided over by Mr. Walter Deacon, the president of the Society, who, in a brief address, recalled the names of the founders—William Allen, the Quaker chemist, and Jacob Bell, whose efforts were supported by an army of unrecorded workers. They had sought to emphasize the importance of education, examination, qualification, professional unity, and discipline in a world all too much concerned with purely business problems.

The secretary, Mr. H. N. Linstead, read a number of greetings which had been received from professional and scientific organizations in all parts of the world. These included the Royal College of Physicians, the University of London, the British Medical Association, the Linnean Society, the Institute of Chemistry, and the Chemical Society. The message sent by the British Medical Association, signed by the President, Dr. Thomas Fraser, read:

". . . Our two professions have been closely associated from time immemorial in the service of the public, and we earnestly hope that this friendly and fruitful co-operation will continue. It is gratifying to me to recall that the British Medical Association from an early period in your Society's history has collaborated with it in work for the advancement of medicine and of pharmacy, which has enabled both professions to bring benefits to the community."

Sir John Anderson's Address

Sir John Anderson said that his own connexion with the Society began in the early days of the National Health Insurance Act, when he remembered interesting discussions on such topics as stock mixtures and the pricing of prescriptions. At the beginning of the last war he was responsible for ensuring a continuous supply of all necessary drugs and medicines, and there followed a period of close and fruitful co-operation between chemists and pharmacists on the one hand and Departments of State on the other, with the result that, in spite of an unfortunate dependence on Germany before the war for much of the supplies of drugs and medicines, it was possible to get through without any serious or even noticeable shortage. The work embodied in the Therapeutic Substances Act sprang directly from what was done at that time. At the Home Office he had had further contacts with the Society over the Dangerous Drugs Act and the Pharmacy and Poisons Act. Therefore it was not strange that with this experience of thirty years a member of His Majesty's Government should come to congratulate the Society on its achievements and wish it well for the future. It was a matter of historical fact (Sir John Anderson continued) that the establishment of the Pharmaceutical Society arose directly out of an attempt on the part of the medical profession to secure for itself greater privileges at the expense of the druggists. The pharmaceutical and the medical professions had some remarkable differences. In the medical profession there were many organizations concerned with the advancement of the interests of the profession, with the licensing of practitioners, or with medical learning, and the General Medical Council, the custodian of educational and ethical standards. The pharmacists, on the other hand, had contrived to combine all these functions in a single organization. How easily they might at any time during the last hundred years have slipped back into the position of a body of privileged shopkeepers concerned only with the furtherance of their material interests!

As a profession they had certain legal privileges. Some perhaps thought that those privileges were inadequate and not in fair correspondence with their obligations; but Parliament did not readily confer exclusive rights upon any section of the community; indeed he believed it never did so unless one simple test was satisfied—namely, that the privilege which was sought was necessary in the public interest. Turning to some of the achievements of the Society, the Lord President said that for fifty years—a period of spectacular, almost revolutionary, progress in medical treatment—the Society had maintained chemical laboratories under the charge of highly competent chemists. Many of the remedies now used in medicine were the products of the chemical laboratory in contrast with the natural vegetable and mineral products whose composition had formed the chief part of the pharmacist's training. The foundation of the new science of chemotherapy had called for intimate collaboration between the chemist, the pharmacologist, and the clinician. The development of all kinds of biological products had completely changed the work of the pharmacists. Again, in the Society's pharmaceutical laboratories, opened by the late Mr. Neville Chamberlain when he was Minister of Health, work of the greatest national importance was being done, particularly in the standardization of therapeutic substances and in the field of nutrition. These laboratories were the only institution in the country where manufacturers could have the vitamin content of foodstuffs and drugs determined. Among the problems of the reconstructive period after the war none would make a stronger claim than those connected with nutrition. He touched, finally, on the many-sided war work of the Society, and ended by congratulating it on its steadfast adherence to the high principles of its founders and its substantial contributions to the common good.

"Jacob Bell and Some Others"

A vote of thanks to Sir John Anderson was carried on the motion of Mr. F. G. Wells, vice-president, seconded by Mr. A. R. Melhuish, chairman of the British Pharmaceutical Conference. The final event was a three-act play written by

Hugh Linstead, the Society's secretary, entitled "Jacob Bell and Some Others." It related how young Bell formed the Society against great opposition, and went for help to William Allen, who became the first president. The third act was staged at the Crown and Anchor Tavern in the Strand on April 15, 1841, when the following resolution was carried:

"That for the purpose of protecting the permanent interests and increasing the respectability of chemists and druggists an Association now be formed under the title 'The Pharmaceutical Society of Great Britain.'"

The audience of 1941 played its part, and when the chairman of that meeting a century ago put the motion it was greeted with loud shouts of "Aye" from the spiritual descendants of those pioneers. The twelve actors carried through their parts extraordinarily well, and the play had its amusing passages.

AWARDS FOR GALLANTRY IN CIVIL DEFENCE

The award of the George Medal to Dr. H. R. B. Norman, resident assistant physician, St. Thomas's Hospital, London, to Mr. P. B. Maling, medical student, and to Mr. H. E. Frewer, assistant clerk of works, is announced in a *Supplement* to the *London Gazette* dated April 11.

Dr. HARRY RUMBOLD BATHURST NORMAN, Mr. PETER BROMLEY MALING, and Mr. HERBERT EDWIN FREWER: "After St. Thomas's Hospital had been hit by a high-explosive bomb it was found that two of the staff were trapped in the wreckage. Mr. Frewer formed a rescue party and was joined by Dr. Norman and Mr. Maling. The debris under which the men were buried had crashed through the ground floor into the basement. The dispensary stores had been destroyed in the explosion and the stocks of alcohol and acids caught fire. Gas was escaping from broken mains and masonry was continually falling. Mr. Frewer led the rescue party into this very dangerous area. Dr. Norman, assisted by Mr. Maling, burrowed into the debris and was able to give morphine injections to the injured men. They then continued the rescue work and ultimately succeeded in extricating the casualties, who undoubtedly owed their lives to the gallant conduct of the rescuers."

Local News

SCOTLAND

Health of Wartime Glasgow

The latest report of the medical officer of health for the city of Glasgow (Dr. A. S. M. Macgregor) covers the year 1939, but introduces some matters relating to 1940. The lower death rates and reduction in the incidence of common diseases in 1939 recall the experiences of London and other cities in the year which saw the outbreak of war, but in 1940 Glasgow showed some disquieting features. The general death rate in 1939—13.3 per 1,000—was the lowest on record. There were fewer deaths due to respiratory and infectious diseases. Acute pneumonia, the most common and serious of the diseases of respiration, caused 867 deaths as compared with 1,158 in 1938 and 1,543 in 1937. There were low death rates from measles, scarlet fever, and dysentery, though the rates for whooping-cough and diphtheria were higher than those for the preceding year. Infant mortality fell to 80 per 1,000 births, the usual range being between 90 and 100. Deaths due to puerperal infection numbered thirty as compared with fifty the year before. During the first quarter of 1940, however, there was an outbreak of influenza concurrently with a long spell of severe weather, and these factors gave rise to a relatively severe incidence of pneumonia. By the end of January the death rate had risen to 41.1 per 1,000 of the population and did not fall to normal levels until the end of March. There was also a large outbreak of paratyphoid fever with 274 cases in the city, but only three deaths. For the first time for many years measles was prevalent in summer instead of in winter. The outbreak expected in November, 1939, did not arrive until April, 1940, continued throughout the summer, and tapered off in August. In the later part of 1940 diphtheria in Glasgow, in common with some other parts of the country, reached its highest known prevalence. The medical officer of health considers that these experiences cannot be related directly to the conditions arising out of the war; apart from the influenza outbreak and this prevalence of diphtheria the health of the city was almost as favourable as it was in 1939. The Emergency Hospital Scheme of the Department of Health has not led to any neglect of ordinary civilian needs. Although a large number of empty hospital beds have had to be maintained, the number of patients admitted to the general hospitals of the corporation in 1939 was only 5% below what it was in 1938.

Edinburgh Gift to Polish Students

On April 18 in Sir John Fraser's operating theatre at the Edinburgh Royal Infirmary, Mr. James Watt, LL.D., president of the Graduates' Association of the University, handed to the Polish Medical Faculty, for the use of its students, a set of the textbooks which are in common use in the medical curriculum of Edinburgh University. Among those who attended the ceremony were Prof. Jurasz, Dean of the Polish Medical Faculty; Principal Sir Thomas Holland, Vice-Chancellor of the University; Mr. W. J. Struthers, secretary of the Royal College of Surgeons; Prof. J. R. Learmonth, of the Edinburgh Chair of Surgery; Colonel Stewart, Superintendent of the Royal Infirmary; and members of the Polish Faculty. Dr. Watt, in making the presentation on behalf of his Association, expressed regret that Sir John Fraser himself could not attend as he was detained on business in the South. Prof. Jurasz gratefully accepted the books on behalf of his students; he expressed warm appreciation of the generosity shown to his fellow-countrymen since they came to Scotland, and particularly thanked the institutions and associations linked with Edinburgh University. Sir Thomas Holland said that the giving of this nucleus for the Polish Medical Faculty's library was an expression of the feelings of 20,000 graduates of Edinburgh spread over the world. The forming of the Polish Medical Faculty in Edinburgh was a milestone in the history of medicine.

ENGLAND AND WALES

Co-ordination of Hospital Services

At the annual general meeting of the British Hospitals Association Sir Bernard Docker, who has lately been elected chairman of council of that body in succession to Sir Harold Pink, spoke on hospital regionalization. The Sankey Commission, he said, limited its findings to the regionalization of voluntary hospitals, but Lord Sankey had since given his public approval to a more comprehensive plan which would embrace public authority as well as voluntary hospitals. Indeed, the Provisional Central Council set up by the association itself to carry into effect the Commission's report had soon realized that full co-ordination of hospital services was not possible unless the co-operation of the public health services was also assured. Another powerful factor was the creation of Lord Nuffield's Provincial Hospitals Trust, one of the objects of which was to encourage the organization of regional councils representative of both types of hospitals. Representatives of the British Hospitals Association had been appointed to the council of the Trust, and the liaison would become still closer with the adoption of some recent proposals. Sir Bernard Docker pleaded for active regional committees in the association, which would join effectively with the regional councils of the Nuffield Trust and enable the association as representing the voluntary hospitals to play its part in this field of post-war reconstruction. There were some, he said, who thought it inadvisable to proceed with regionalization at all during the war, but he could not share that view. On the contrary, no time should be lost in building up a consolidated service; that was the view also of the Nuffield Trust. Plans were being prepared in all directions to meet the conditions which would arise after the war, and it was most

undesirable that in the field of hospital service such action should be deferred. The duty of the British Hospitals Association was to ensure that the special position of voluntary hospitals was recognized and to take its part in framing any scheme for the co-ordination of the hospital services of the country. With that in view, the close co-operation of the association with King Edward's Hospital Fund for London, the Nuffield Trust, and other interested organizations was necessary for the formulation of an agreed policy. It was announced at the meeting amid general regret that Mr. R. H. P. Orde had retired from the position of honorary secretary of the association on account of ill-health, and tribute was paid by the chairman to his services in various capacities to the voluntary hospitals extending over a period of forty-two years. Mr. J. P. Wetenhall, house-governor of the West End Hospital for Nervous Diseases, had been appointed to succeed Mr. Orde.

Some Food Facts

The *Wartime Nutrition Bulletin*,[1] which in March reached its seventh issue, contains an interesting summary of the bread position. A brown loaf of 85% extraction from the grain is to be marketed, and probably also the "fortified" loaf, which contains the synthetic vitamin B_1 but none of the other members of the vitamin B group which exist in wholemeal bread. The normal pre-war sale of brown bread is, however, reputed to be not more than 10% of the total. The *Bulletin* also gives a full analysis of the milk situation, particularly the shortages which occurred at the end of last year in Brighton, Manchester and other Lancashire towns, Lincoln, and South Wales. One cause for this is said to have been the official delay in fixing prices and in making known the plans for distribution of foodstuffs. This delay, which seems unfortunately to have occurred again this year, makes farmers tend to slaughter rather than to increase their stocks. The prevalence of mastitis also greatly diminishes the milk supply—to an extent of some 4 to 7% and a sum of £2½ million a year, though only £5,000 is being spent annually in research on methods of combating the disease. The shortage was partly overcome by diverting milk from milk-drying plants, so that the sale of liquid milk is said to have risen by 18%. This increase may not be shared equally throughout the community. The Oxford Institute of Statistics reports, on a small sample of working-class budgets, that between May and October, 1940, there was a decline of 11 or 12% in consumption. In the summer months there is, of course, a milk surplus, which is to be used in cheese manufacture, but this is unlikely to bring the cheese supplies to normal. This is unfortunate, since with rising prices many poor people may be consuming little animal protein. Prof. Bowley found that when the bacon ration was 8 oz. only a small minority of working-class families took their full quota.

Because of the necessity to conserve shipping space, much potential first-class food will now be wasted or diverted to commercial purposes. Palestine in 1939–40 sent us only 8 million boxes of citrus fruits as against 15 million the year before. Much of Jamaica's banana crop will be destroyed or processed for commercial use. In West Africa in 1940, 20,000 tons of cocoa were burnt, though Britain has undertaken to buy and market the whole Nigerian and Gold Coast crop for the duration. The Government has also arranged with the French Cameroons to purchase cocoa, bananas, and coffee, the bananas and coffee to be disposed of locally. In the British Cameroons the restriction on banana exports is likely to lead to diminished plantation areas; bananas may be dried and powdered and used locally for bread-making.

As against this somewhat pessimistic picture, communal feeding is increasing steadily and nutritious food is thus being provided cheaply; in some districts free meals are available for the poorest sections of the community, and at a cost of 3d., 4d., and 5d. for those who can afford to pay. The charges and arrangements vary considerably from district to district, so that it is difficult to give a composite picture—but the general trend, cheapness with nourishment, is in the right direction.

[1] Published by the Children's Nutrition Council, membership of which is 5s. per annum; inquiries should be addressed to the Hon. Secretary, 6, East Common, Harpenden, Herts.

Reports of Societies

URINARY ANTISEPSIS

At a meeting of the Royal Academy of Medicine in Ireland on March 7, the chair was taken by the President, Dr. R. H. MICKS, and Dr. P. T. MCNALLY read a paper on the effects of sulphonamides in the urine.

He summarized *in vitro* experiments on the action of sulphanilamide, sulphapyridine, sulphathiazole, and sulphmethylthiazole on the growth of *Proteus vulgaris*, *Staph. pyogenes*, *Bact. coli*, and *Str. faecalis* in urine, and remarked that the results closely followed those of *in vivo* experiments. None of the drugs had any effect on the *Str. faecalis*, but mandelic acid was usually successful in dealing with this infection. On the other three organisms sulphapyridine had the most effective action. Sulphathiazole *in vitro* had proved disappointing against *Staph. pyogenes*.

Prof. T. W. DILLON asked at what concentration efficient bactericidal action was obtained. Sulphathiazole was absorbed, and excreted, much more rapidly than sulphapyridine. Dr. OLIVER FITZGERALD suggested that urine was not a dependable culture medium when determining the bactericidal action of sulphapyridine. Mr. J. C. FLOOD observed that urine might contain bacteria as a result of excretion from the blood stream or direct extension from an infection of the genito-urinary tract. He asked whether normal urine were itself bactericidal, and in what form the drugs were excreted. He thought it important to remember that the disease was not in the urine, any more than a respiratory disease was in the sputum. Dr. A. R. PARSONS was disappointed that no good results had been obtained for *Str. faecalis*. American journals had reported very good results with sulphapyridine. He thought that half the sulphanilamide dose was eliminated unchanged and the other half as the acetyl derivative.

The PRESIDENT hoped that Dr. McNally would collaborate with the clinicians; simple pyelitis was in everyone's mind. Most workers had found it not difficult to clear up the urine with the older drugs, but pyelitis had a definite tendency to clear up of itself. It was difficult to apply laboratory work to patients; for one reason they suffered from thirst if their fluids were too restricted. Satisfactory clinical results could often be obtained if the amount of fluid were increased without increasing the amount of the drug. He asked if the *p*H should be varied with the drug selected and whether there were significant resistance to these drugs.

Dr. MCNALLY, in reply, said that bactericidal action depended almost entirely on the initial inoculum used; he had tried varying the *p*H and had found that an alkaline urine produced better results with all the drugs. (An annotation on this subject appeared in the *Journal* of April 5, p. 521.)

Hyperventilation Syndrome

Dr. D. K. O'DONOVAN, in a paper on hyperventilation syndrome, outlined the symptoms and treatment, and divided the patients into a hypersensitive group, who developed symptoms after less than two minutes, and the larger group whose sensitivity was normal. He then described three "hypersensitive" cases. In one the sensitivity was affected by relatively minute changes in blood calcium and the patient was cured by large doses of calcium, phosphorus, and vitamin D by mouth. Another patient had low blood chloride due to vomiting. The syndrome was important in the clinical picture of parathyroid tetany, and hyperventilation tetany was closely related to the other tetanies. A low serum phosphate after the subsidence of symptoms was not diagnostic for the hypersensitive group.

Dr. E. HARVEY mentioned the importance of calcium for patients who suffered from fainting attacks, and asked if Dr. O'Donovan had considered the effect of the other ions. A patient might have a fairly normal calcium and suffer from tetany because of an overbalance of potassium and ammonium ions. Dr. P. T. O'FARRELL said that these cases might be labelled epilepsy or hysteria. Dr. W. R. F. COLLIS asked how acute tetany should be controlled in children and what was the exact mechanism of tetany in alkalosis. Dr. D. M. MITCHELL asked

whether anyone who had hyperventilation for long enough would go into tetany; he believed hysterics sometimes did. Prof. J. M. O'CONNOR said that in these patients the *p*H of the body had lost its normal steadiness. When the *p*H first rose the respiration decreased and the central nervous system became peaceful; why then did it become excited when the *p*H went still higher? The insulin convulsion followed the fall in metabolism produced by the insulin. Dr. ALAN THOMPSON mentioned that acapnia might result from the depth or the rapidity of the respirations, as in cerebral haemorrhage, pneumonia, and possibly in hypoglycaemic coma. Hyperventilation might occur if an iron lung were not properly adjusted—and also in fixed acidosis, but he had never observed the syndrome in these cases. Dr. OLIVER FITZGERALD referred to adrenaline as a producer of tetany and of the known relation between potassium and adrenaline; he asked if calcium had any similar relation.

Correspondence

Rehabilitation of the Injured

SIR,—Mr. E. A. Nicoll, in his most valuable article (April 5, p. 501), has again proved that the months and years of incapacity which so often follow industrial injury can be avoided by properly controlled rehabilitation. He has confirmed the experience of Dr. Moore at Crewe and of Mr. Griffiths at Greenwich. Within a few days of reading his article I visited the Rehabilitation Centre at Mansfield and found twenty or thirty miners working hard, developing muscles, mobilizing joints, overcoming inertia, and co-operating enthusiastically with their very capable physiotherapist, Mr. Colson, C.S.M.M.G. None were willing to admit of boredom; all were happy and cheerful; all were on their way to recovery. What a contrast with the miserable victims of industrial injury who tread their weary path from one consulting room to the next, who are reported upon at monthly intervals, and who, having lost the will to recover, steadily become enmeshed in the medico-legal web. As I have written elsewhere, "With the stimulating atmosphere of friendly rivalry, the enthusiasm of the crowd which contrasts so sharply with the helpless despair of the individual, and with carefully graduated physical stresses, more can be done by a few weeks of rehabilitation treatment than by months of 'light work' or years of massage."

The tragedy is that, knowing the solution to the problem, we are failing to apply it. In days of peace 200,000 fractures were sustained in this country each year. Allowing for injuries other than fractures, the figure should be doubled or even trebled, and with the increased risks of war we may well find that the figure exceeds half a million. Rehabilitation treatment is available for thirty men at Mansfield, for thirty at Crewe, and for thirty at Greenwich. What is happening to the other 499,000 odd? A great army of industrial workers is being wasted at a time when man-power is of such vital importance that women are being called upon to take their place in industry. Rehabilitation centres must be established forthwith at every place where fractures are treated.

It is to be noted that remedial workshops are not rehabilitation centres. Similarly, occupational therapy centres are not rehabilitation centres. Useful as these additional measures may be, the basis of rehabilitation depends upon direct contact between surgeon and patient. As Mr. Nicoll so rightly emphasizes, the individual must be inspired, his confidence must be gained, he must learn that recovery will come by his own unremitting efforts. Only after that are remedial workshops, occupational therapy centres, and group exercises by P.T. instructors of any value.—I am, etc.,

Liverpool, April 15. R. WATSON-JONES.

SIR,—In your leading article on rehabilitation of the injured (April 5, p. 519) mention was made of three rehabilitation centres, each for a particular trade: Berry Hill Hall for miners, the L.M.S. centre at Crewe for railway workers, and the Albert Dock Hospital for seamen. May I point out that the Albert Dock centre is not restricted to seamen. The majority of cases are in dock labourers or workers in the various factories in the dock area, and comprise members of a large variety of trades associated with heavy industry.

The running of a clinic of this nature emphasizes certain difficulties more than does a clinic such as Mr. E. A. Nicoll describes (p. 501) at Berry Hill Hall. When all the patients come from the same industrial organization and the clinic is part of that organization, it appears possible to exert control and discipline in employing set exercises, but in a clinic which caters for patients from any source, with a purely voluntary attendance, an attempt to make the men pull weights and perform strenuous physical exercises may lead to slackness and irregular attendance. Dr. Bohler relied almost entirely on remedial exercises, but his clinic was run with a military discipline that no English workman would tolerate. Undisguised exercises, moreover, sometimes have a bad psychological effect on the patient, emphasizing disability and pain, and causing despondency when recovery is slow. At a mixed clinic, therefore, especially where the majority of patients are not removed from their home surroundings to what approximates to a convalescent home, pure remedial exercises may be difficult to employ as the basis of treatment. By the greater use of recreational activity, selectivity suffers to a certain extent, but some graduation of effort can be achieved by a good trainer, and greater co-operation is obtained from the men. It is found that a large proportion of patients will recover with general measures, and the few that do not respond satisfactorily can be then tried separately on set exercises.

Occupational therapy, the third method of treatment mentioned by Mr. Nicoll, is probably the most difficult to attempt in a clinic recruited from all and sundry. For instance, at the Albert Dock clinic a garden was started, but the majority of men required a bribe of beer to work in it. They thought that their time would be better spent in their own home gardens. On one occasion, when the men were asked to help remove a heap of coal that had been dumped accidentally on the playing area, there was a complaint leading to a conflict with the local trade union leaders.

A fourth and most important part of treatment is psychology: in fact, it may be said that all forms of physical treatment will often fail if this is neglected. First, as Mr. Nicoll emphasizes, the workman must be convinced that getting well is hard work and a whole-time job. Secondly, every attempt should be made to relieve his mind of financial worries and despair of getting another job when he is discharged from hospital. Under the influence of these two factors, slight pain and physical impairment, insufficient in themselves to prevent a return to work, can cause total disability and make futile all efforts directed solely to bone alignment and muscle function. They contribute largely to the considerable time-gap (sometimes years) that exists between the duration of hospital treatment (regarded by many clinics in their statistics as the date of cure) and the time off work. No injured workman can be honestly regarded as recovered until he is actually doing work of a similar nature to his pre-accident employment. The ideal to aim at is never to discharge a workman except into a job that is waiting for him, and then to be prepared to take him back for further treatment if, after a week or so, he finds he is still unable to do the work. This is the only way that true statistics can be obtained. It would play havoc with many claims of successful end-results and quick recovery times, but it would greatly diminish the large number of compensation claims heard in the courts one, two, or even three years after the patient has been discharged fit for work from the hospital. The man returns to work sooner, knowing that if any residual pain and stiffness prove disabling he will be taken back by the hospital without prejudicing his compensation payments or his position with his firm.

At the Albert Dock Hospital considerable success has been achieved in obtaining the co-operation of employers, by means of which a man can be told that a job is waiting for him as soon as he is fit, thus removing from his mind at the commencement of physical treatment a very real obstacle to recovery. On one or two occasions men were so worried about debts incurred since their accident that all attempts to get them fit for work failed, and they seemed bound to join the ranks of the permanently incapacitated. The offer of a

sympathetic employer to settle their small debts and provide them with work caused a dramatic recovery, and a happy, competent workman was restored to industry.

There are very few true malingerers, and the number that deliberately seek compensation claims can be materially reduced by suitable psychological treatment. However, there is a serious danger to success from the touting agents of certain firms of solicitors. These hang around fracture clinics attempting to undermine the patient's confidence in the disinterestedness of the medical staff, and persuade him to put his "case" in the hands of the solicitors they represent. I have known patients to fall under the influence of these men immediately on arrival at the hospital, even before they have been seen by the doctor on duty.

In conclusion, may I suggest that the value of rehabilitation treatment is not confined to the recently injured. Old cases, perhaps of years' duration, with gross deformity, and apparently a permanent liability on the State, often do surprisingly well. The knowledge that at last someone is taking an interest in their "case," combined with the strengthening of muscles allowed to grow weak from disuse and the atmosphere of cheerful expectation of recovery that should pervade every rehabilitation clinic, will sometimes restore a hopeless chronic to partial or full work in a surprisingly short time. One or two of these cases in a year will handsomely repay a firm for any financial aid they give to the clinic or the injured workman.—I am, etc.,

G. R. BUTTERFIELD, F.R.C.S.Ed.,
Late First Assistant, Albert Dock Hospital Fracture and Rehabilitation Clinic.

London, April 17.

Transfusion of Red Cells

SIR,—In the present emergency the frequent occurrence of shock in patients injured in air raids necessitates the maintenance of large stocks of plasma in blood "banks." When plasma is prepared the erythrocytes are usually discarded. It is apparently not widely realized that the red cells can be used effectively for raising the haemoglobin level in anaemic patients not suffering from shock. In fact, concentrated cell suspensions have certain definite advantages over whole blood for patients whose haemoglobin is low but whose blood volume is not reduced—for example, pernicious anaemia, aplastic anaemia, haemolytic anaemia, purpura, or post-haemorrhagic anaemia when the bleeding has stopped and the blood volume has been restored from the tissue fluids.

Since the volume of cells from 500 c.cm. of whole blood is approximately 250 c.cm., including the residual plasma (the exact volume depending on how completely the plasma has been separated), it follows that the rise in haemoglobin after the transfusion of a certain volume of cells is about twice that which follows the transfusion of the same volume of whole blood. Alternatively, to produce a given rise in haemoglobin it is necessary to transfuse red cells in only half the volume of whole blood required for this purpose. Accordingly, the transfusion can be completed much more rapidly with decreased risk of left ventricular failure and pulmonary oedema.

It should be pointed out that the red cells should be utilized as soon as sedimentation is far enough advanced for plasma separation—twenty-four to forty-eight hours after withdrawal of the blood, which is stored for this period at about 4° C. The cell suspension then contains the majority of the white cells and thrombocytes, and the residual plasma contains complement. Hence the suspension of red cells from a litre of blood has been found as effective in controlling haemorrhage as half a litre of fresh blood. It might be thought that a concentrated red-cell suspension of this kind would be more difficult to transfuse than whole blood and might involve increased danger of capillary blockage. Actually, we have not found this to be the case, using an efficient filter such as is supplied by most transfusion services. As a rule, however, we add about 100 c.cm. of sterile saline to the cells from each pint of blood; this reduces viscosity and the saline leaves the circulation before the transfusion is completed.

We have given transfusions of concentrated red-cell suspensions to many patients suffering from primary and post-haemorrhagic anaemia, invariably with satisfactory results. Single transfusions of red cells from two to five pints of blood have been given in one to two hours, the exact amount depending on the severity of the anaemia.

The object of this letter is to call attention to a method of transfusion which combines economy of blood with, in suitable cases, actual therapeutic advantages.—We are, etc.,

STANLEY DAVIDSON.
C. P. STEWART.

The University, Edinburgh, April 17.

Crush Injuries

SIR,—In common with your other correspondents I would like to congratulate the various authors for their work carried out in difficult circumstances on uraemia following crush injuries. There would appear to be a general idea that the syndrome has existed unobserved in civil practice, and pit accidents are put forward as a likely source. However, no instances have been cited since the articles appeared in the *Journal* of March 22, and I write to call attention to two cases published under the title of "Renal Lesions from Traumatic Shock," by Husfeldt and Bjering in 1937 (*Acta med. scand.*, 1937, **91**, 279). Both patients sustained fracture of the pelvis and damage to soft tissues. Shock developed in both, yielding to transfusion of citrated blood. Death occurred on the eighth day with a rising blood urea, hypertension, oedema (in one case), and general signs of uraemia. The urine was very scanty, of low specific gravity, and contained casts and a few erythrocytes. Renal function tests gave very low results. At necropsy no injury to kidneys or urinary tract was found. Microscopically the chief lesions were emptiness of the glomerular capillaries and degeneration of the epithelium of the tubules, in some of which granular-coloured pigment was present. Husfeldt and Bjering showed that incompatibility of blood could be reasonably ruled out in their cases by the preliminary tests, and further stated that the clinical manifestations and necropsy findings were not those characteristic of a fatality following a transfusion with an incompatible blood. In two of the cases reported by the M.R.C. Subcommittee in the *Journal* neither blood nor one of its derivatives was employed in treatment. This makes it improbable that one of these substances is responsible for the uraemic manifestations. In contrast to the air-raid casualties the duration of crushing was short—a matter of minutes rather than hours—and shock treatment was instituted soon after injury.—I am, etc.,

Glasgow, April 15. J. BASIL RENNIE.

Limb Compression Ending Fatally in Uraemia

SIR,—With reference to the case of limb compression ending fatally in uraemia, which was especially reported in the *Journal* of March 22 (p. 434) by Drs. R. Mayon-White and O. M. Solandt because no blood transfusion had been given, I noticed that the child had had three transfusions of four-times-normal serum made from the pooled sera of Group A, B, and AB donors. I realize that the serum from AB donors is free from agglutinins, and also that serum taken from a mixture of A and B bloods may be practically free from agglutinins, but I see no reason to suppose that agglutinins are in any way lessened by mixing A and B sera after the agglutinogens in the red cells have already been withdrawn, as had apparently been done in this case.

It would appear to me that the serum used was possibly not free from agglutinins, and when given intravenously in concentrated form would be excreted almost immediately by the kidneys and might cause haemolysis of the recipient's red cells. This may be another explanation of the possible cause of "transfusion kidney" reported in so many cases of limb compression. I should like to know if serum and plasma are tested for the presence of agglutinins before being issued.

Crush injuries due to falls of roof are not uncommon in colliery districts; I have always treated them with rectal hypotonic saline and glucose as well as intravenous treatment, and I am wondering why more use was not made of rectal saline in the cases reported. These cases of anuria are apparently due to blockage of the renal tubules. It has occurred to me that dilatation of the renal tubules in an established case might be attempted by spinal or splanchnic anaesthesia.—I am, etc.,

Newport, Mon., April 12. J. T. RICE EDWARDS.

Crush Injuries and Renal Failure

SIR,—In the cases of crush injury reported in the *Journal* of March 22 there is evidence to suggest that, whatever the mechanism, the result of the injury is to produce intravascular haemolysis. Many of the patients passed blood-stained urine soon after admission to hospital. Though jaundice has been reported so far the blood bilirubin in the case quoted by Beall, Bywaters, Belsey, and Miles was slightly raised.

Prof. Baker has shown[1] that post-transfusional urinary suppression is due to excretion of haemoglobin with a urine of high acidity and salt concentration. Under these conditions the excreted haemoglobin is converted to a granular deposit of haematin which obstructs the renal tubules. He also showed that, conversely, if the urine be alkaline no haematin granules are formed.

Thus it would seem that in these crush injuries more attention might profitably be given to the reaction of the urine, and that the aim of treatment should be to maintain an alkaline urine.—I am, etc.,

T. DINSDALE,
Surgeon Lieutenant, R.N.V.R.

March 29.

Blast Injury to Lung

SIR,—I should be grateful if you would allow me space to comment on certain matters of fact raised by Dr. G. R. Osborn (April 5, p. 506).

1. When a bomb bursts in a confined space reflections from the walls increase both the impulse of the blast wave and the time for which high-pressure values are sustained. Assuming that the walls are blown out, this increase in time is, however, only a matter of some thousandths of a second. On the other hand, if the force of an explosion is insufficient to break the walls in an "average" house (that is, if the explosion is a small one) the blast wave is reflected from wall to wall until its energy is absorbed and its pressure falls to that of the normal atmosphere. In the first case blast injuries would be of little clinical interest, since people in the room with the bomb would almost certainly either be killed or also suffer from severer injury due to agencies other than blast. In the second case it is unlikely that people in the room would be directly hurt by the blast, for, as both experiment and critical field observation have shown, if the pressure is insufficient to knock down walls of ordinary thickness and construction it would also be below the threshold at which lung damage occurs.

Dr. Osborn is misleading in treating a house in which an explosion takes place as a single unit. Lest his remarks about the extensive risk of the direct effects of blast in houses cause alarm, it should be stated that when a bomb of small or medium calibre bursts in a room so much energy of the blast is absorbed in shattering the walls that the pressure outside the room is as a rule relatively small, and relatively harmless from the medical point of view. This has been found both by experiment and by careful analysis of actual incidents in which people have been in rooms adjacent to one in which a bomb has burst and blown out the intervening walls. With all except the very heavy types of bomb, primary blast injuries are unlikely outside the room in which an explosion occurs or in open passages leading from such a room. Primary blast injuries in houses from bombs falling outside are only likely when the bomb is so big and the pressures so great that the houses are completely demolished.

2. Dr. Osborn states that there is "no justification" for my reported remark (*Journal*, January 18, p. 94) that at sixty or seventy feet the blast pressures in the open from a "large" bomb cannot directly harm even though they may be sufficient to damage walls and windows. Paradoxically, he also states that this view is usually true. The justification for the statement is that it is based on actual observation. It is not usual to publish the sizes of bombs. Nevertheless it can be stated that since it is necessary to multiply the charge eight times to double the distance at which a given pressure will occur (a law to which I referred in my paper to the Royal Society of Medicine[2]) the threshold distance for "primary-blast" lung injuries even for the largest bombs now occasionally used is unlikely to exceed, say, 150 feet in the open.

Human beings are very much more resistant to the primary effects of blast than are most building materials. Furthermore, in so far as an evaluation of the position is possible on the available facts it can be stated that, at the same distances and from the point of view of the direct effects of blast, a man in a room in which an explosion occurs is worse off than a man in the open; whereas a man in a room adjoining one in which an explosion occurs is better off than he would be in the open.

3. Not academic interest but practical need made it urgent to discover how blast exercises its primary effects on the body and to what extent its direct effects can be observed in air-raid casualties. We have taken no pains to belittle, as Dr. Osborn suggests we have, or to exaggerate the importance of, the problem. Owing perhaps to lack of knowledge of the circumstances under which his cases were injured, knowledge which Dr. Osborn suggests is not only unnecessary but perhaps misleading, it is doubtful, as my colleague Dr. Krohn suggests below, whether Dr. Osborn's paper has in fact much to do with the direct effects of blast—except in so far as it speculates about the subject. His cases reveal no evidence of direct blast injury as the term should be used, and much evidence of more understandable forms of trauma due to secondary and tertiary effects of blast—violent displacement, falling masonry, and secondary missiles, any or all of which, as I have emphasized before, may cause lung injuries that in many respects resemble those caused directly by blast.[2] It is probably to such agencies mainly that most lung injuries in air-raid casualties are due. Whatever their cause, however, it is necessary, as Dr. Osborn points out, that their presence should not be overlooked.—I am, etc.,

S. ZUCKERMAN.

Department of Human Anatomy, Oxford, April 21.

SIR,—There can be no question that many varied forms of trauma to the thorax, as well as the blast from high-explosive bombs, can produce haemorrhagic lesions in the lungs without causing any obvious injury to the surface of the chest. It is also clear that, whether the direct action of blast, or falling on to a hard surface, or the impact of flying masonry is responsible for the injury in air-raid casualties, all three immediate causes depend on the explosion of a bomb. Finally, it is apparent that, however the lung injury is caused, the means of diagnosing it clinically and the methods of treatment are likely to be similar.

These general points Dr. G. R. Osborn rightly brings out in his article in the *Journal* of April 5 (p. 506). He appears, however, to deprecate attempts to look more closely into the matter, and *ex cathedra* suggests that, as a rule, blast plays a direct part in causing injuries to people removed from bombed buildings (presumably forgetting that explosions have not occurred in a very high proportion of what are called bombed buildings).

It is permissible to use Dr. Osborn's series of eight fatal cases to test this generalization. No details about external or internal injuries are available for one case. Of the remaining seven: Three had fractured skulls—one of these cases, a girl of 17, appears to be the same as that described by Osborne in a previous paper.[3] In the present account Osborn states that a fractured skull was the only external injury. In his earlier paper he refers to abrasions of the right hand. One had a fractured skull and fractured ribs. One had multiple injuries from secondary missiles, with a penetrating wound of the chest, and a forearm "blown off." One had multiple penetrating wounds, four of which perforated the skull, and four ribs were also fractured. One had a perforating wound of the chest.

Some degree of intrapulmonary haemorrhage was found in all but one of the seven cases (the exceptional case being one of the three with only a fractured skull). Of these six, four had either perforating wounds of the chest or fractured ribs. These obvious chest injuries (and falls or crushes probably associated with them) might well have been the cause of the observed intrapulmonary haemorrhages.[2] Clearly, too, the remaining two cases with fractured skulls must have suffered

[1] "Urinary Suppression following Blood Transfusion." S. L. Baker, *Lancet*, 1937, **1**, 1390.
[2] Zuckerman, S., *Proc. roy. Soc. Med.*, 1941, **34**, 171.
[3] Osborn, G. R., *British Medical Journal*, 1940, **2**, 317.

violent external trauma, which, it is also known, may cause lung damage without any apparent external injury.

It is, of course, possible that part or all of the observed lung lesions may have been direct effects of blast. Since, however, this possibility must remain speculation, it is surely safer to suppose that the more obvious trauma to which the casualties were subjected was responsible for the pulmonary lesions, and that blast played only a secondary part, if any part at all.

Another point in Dr. Osborn's account which suggests this conclusion is the fact that Cases 1 and 2 were beside each other when the house they were in collapsed. The blast pressures sustained by these two casualties were probably identical, and while there is individual variation in the lesions caused by a given pressure, probably the most satisfactory explanation of the different degree of lung damage would be that the injuries were not due to blast acting on people of different physique, but to falling masonry or debris, the effects of which might well have been different for the two persons. It is particularly in this sort of case that the exact history of the incident, which is rejected as misleading by Dr. Osborn, would in fact have been of value—not perhaps to the clinician, for the patient soon died—but perhaps to the pathologist and experimental worker.

Furthermore, Dr. Osborn emphasizes the importance of the severe damage to abdominal organs which occurred in four of his cases. It should be noted that while about 40% of animals exposed to blast showed abdominal lesions these were usually only small patches of petechial haemorrhages in the intestinal wall; serious tears or ruptures of abdominal organs were rare.[2] Since the animals were undoubtedly blasted (in the sense that the term relates to explosions) and yet failed to show serious damage to the abdominal organs, it appears possible that the severe visceral lesions described by Dr. Osborn were not due to the blast but to the impact of a more obvious crushing agent.

Dr. Osborn remarks that lung injuries are "now only too common in hospital practice," even though the number of such cases reported already would seem to be remarkably small. The publication of detailed information concerning these cases would be very valuable and more likely to bring solution of the problems closer than speculation unaccompanied by experiment. It may be added that Dr. Payne reports in the *Journal* of April 12 that he has seen no blast injuries in a series of 226 air-raid casualties.

There are two methods which may help us to decide the importance of blast in causing injury. (1) Rupture of the tympanic membrane will often be present if the patient were close enough to suffer at all seriously from the effects of blast. The eardrums of air-raid casualties should always be examined. (2) While fat embolism does not appear to play any part in causing the experimental lesions due to blast,[2] there is evidence that it does so in cases due to direct trauma. Robb-Smith's simple and effective post-mortem test[4] for the presence of fat emboli may help to differentiate the two types of injury.

Some other issues raised by Dr. Osborn are perhaps treated more dogmatically than is justified at present. Thus the question of whether the haemorrhage into the lungs is progressive or not cannot be answered by a plain yes or no. Any haemorrhage in any part of the body may be arrested or may continue. There can hardly be more justification for saying that all haemorrhages will stop than for saying that all will be progressive. Moreover, while it is very likely that the pressure component of the blast wave is the important factor in causing injury, the physics associated with the sudden and extremely brief impact of a wave of high pressure on such a complicated system as the thoracic contents are anything but obvious. Dr. Osborn writes that "to understand the lesions described for blast in animals and man there is no need to assume that blast has any mysterious properties." Yet he refers later to "the peculiar behaviour of blast on houses." This is an unusual inversion of the more reasonable doctrine that, while we can often define with accuracy the effects of a given agent on inanimate objects, the responses of the human body to the same stimulus are generally more difficult to unravel.

Finally, surely Dr. Osborn does not really mean us to believe that in determining the severity of injuries "the state of the patient is probably of greater importance than the size of the bomb or the distance from it." Whether the bomb is 500 lb. or 50 lb., and the distance 50 ft. or 10 ft., are surely more important than being thin and naked, or obese and heavily clothed, at either of those distances.—I am, etc.,

P. L. KROHN.

Department of Human Anatomy, Oxford, April 15.

[4] Robb-Smith, A. H. T., *Lancet*, 1941, 1, 135.

Treatment of Burns and Scalds

SIR,—From the numerous letters that have appeared in the *Journal* recently on the treatment of burns, and from the number of local remedies advocated, one can only conclude that up to the present no local application has been found that can be safely recommended to the profession for the routine treatment of burns. Everyone seems to be agreed that tannic acid rightly applied—that is, after thorough cleansing of the skin—is probably the best remedy of all. But what appalling results one meets with after the indiscriminate use of that extremely excellent application tannic acid jelly, which is now to be found in every household!

The question arises, then, Is there any application that one can safely recommend in all cases? Almost more important still, Is there any application that one can safely recommend to first-aid parties? I believe that the only preparation that meets all the requirements, not only as a first-aid measure but also as a routine treatment of burns, is acriflavine emulsion, 1 in 1,000. I have used this preparation now for a considerable time to the exclusion of all other forms of local treatment and have never been disappointed. It possesses the following merits: it is safe, it is soothing, it is antiseptic, and healing takes places more quickly than with any other local application that I am acquainted with.—I am, etc.,

Battle, April 13. T. J. HOLLINS.

Epidemic Gastro-enteritis

SIR,—The problem of epidemic gastro-enteritis, such as described in the report by Lieut.-Colonel A. H. D. Smith and Captain D. J. Davies (April 12, p. 554), is one which has confronted all general practitioners during the past winter, and the value of the report seems to lie in the negative bacteriological and epidemiological findings. As the writers state, these findings suggest perhaps a virus infection allied to influenza, or perhaps influenzal gastro-enteritis itself. Identical cases to those reported have been frequent this year, and the opportunity of observation in a military camp is valuable, since large numbers are not seen in general practice, nor are the opportunities of laboratory aids open to the busy practitioner.

The cases seen have shown many diverse symptoms, some of which are not mentioned in the report and which may or may not be related to the one infection, but at any rate they occurred in the same patient, either at the same time or more frequently preceded or followed on the gastro-enteritis.

The following appear to have been the main types: respiratory catarrh, bronchitis and pneumonia, vomiting and/or diarrhoea, epigastric discomfort and nausea, myositis and fibrositis ("muscular rheumatism," especially interscapular), neuritis (localized—e.g., supra-orbital or external popliteal), and low back pain chiefly affecting the sacro-iliac joints (this persisting for one or two weeks). Two patients developed joint swellings similar to acute rheumatism. In addition I have noted several cases of acute conjunctivitis of moderate severity, one case commencing with this and developing the gastric symptoms three days later. Almost all the patients had one constant feature—namely, redness and soreness of the fauces. All the cases seen cleared up rapidly, with the exception of those more severe respiratory affections, chiefly in the older patients. Several cases showed definite localized tenderness in the right iliac fossa and were difficult to differentiate from acute appendicitis, but the associated symptoms, and often accompanying tenderness over the epigastric region, were as a rule present. This appendicular tenderness, it is reasonable to suppose, was due to involvement of the lymphoid tissue in the appendix similar to that of the tonsils or fauces. In these cases among the general public the incubation period and infection by direct contact were noted to be similar to those mentioned by the writers of the report, but in some cases the contact developed the related, and not the identical, type of symptoms.

Finally, as mentioned above, the opportunity of pathological investigation presented in the military camp is valuable, and seems to stress the need for a medical service on the lines suggested earlier by Dr. S. Terry Pybus (*Supplement*, March 15, p. 29) in which central clinics and laboratories would give those opportunities of investigation at present denied to a busy general practitioner.—I am, etc.,

Brierfield, Lancs, April 14. H. C. PALIN.

Incubation Period in Cases of Gastro-enteritis

SIR,—Lieut.-Colonel A. H. D. Smith and Captain D. J. Davies (April 12, p. 554) give an interesting account of an outbreak of gastro-enteritis among troops.

I have seen forty-seven cases this winter with symptoms and signs as they describe. I have not the facility for examination of the stools in each case, but I have had negative reports in four cases. These observers put the incubation period at thirty-six hours to seven days. Many of the cases I have seen have had an incubation period of twenty-four hours. I have no recollection or record of any case in which it was longer than four days. In one family the father had been away on business and stayed with a family where the infection was in progress. He returned home one evening and was himself ill in the night. Exactly twenty-four hours after his return home one child took ill, and the other three persons in the house were all attacked within four days. These, of course, may have been infected by the husband or by later infected persons in the household. All had been inoculated with T.A.B. two months previously. This family history is almost typical.

I agree, too, with the sporadic distribution of the infection. I cannot narrow it down to contamination of milk or food.—I am, etc.,

Leeds, April 14. R. A. MURRAY SCOTT, M.B., B.Ch.

Digestive Disorders in the Forces

SIR,—I was very interested in the article by Lieut.-Colonel J. Gibson Graham and Captain J. D. Olav Kerr on digestive disorders in the Forces (March 29, p. 473). We do not fully understand the cause of peptic ulceration yet, but the stress and strain of modern life seems to be a predisposing factor in many cases. Hence it seems astonishing that men should be accepted for service who have had definite ulceration previously, not to mention haematemeses, perforations, and gastro-enterostomies.

Surely it is plain to see that a few weeks of Army life may undo perhaps years of treatment. As the authors point out, many of these men were able with care to carry out a normal and useful civil life. If such men are accepted they will rapidly be occupying hospital beds, be no use at all as soldiers, and have weeks of treatment in front of them before they are able to return to their civil occupation again.

It is to be hoped that medical boards will in future reject all who suffer or have suffered from this serious and painful complaint.—I am, etc.,

Sheffield, April 13. J. A. WOOD.

Obscure Nervous Effects of Air Raids

SIR,—I have read with great interest Mr. Tom Harrisson's letter on this subject (April 12, p. 573). If it could be arranged for these cases to be examined by a competent rhinologist I believe it would be found that all, or nearly all, of them were suffering from chronic sinusitis. The combination of concussion—whether blast or impact—with sinusitis seems to produce a *forme fruste* of encephalitis lethargica.—I am, etc.,

London, W., April 16. H. CRICHTON-MILLER.

Malarial Therapy for Epilepsy

SIR,—With reference to your annotation on the treatment of G.P.I. (March 29, p. 486), the late J. C. Ramsay (*J. ment. Sci.*, 1929, **75**, 257) treated with malaria at Claybury Mental Hospital six cases of epilepsy, four of which showed the haemoclastic crisis. Four patients showed a temporary reduction of fits with a subsequent increase during observation periods exceeding seventy-five days after the final malarial paroxysm. In two cases amelioration of the mental condition occurred.—I am, etc.,

April 2. G. DE M. RUDOLF.

Convulsion Therapy by Electricity

SIR,—Dr. James S. McGregor (April 12, p. 571) takes as the basis for his criticism of faradic shock therapy his own statement that this treatment was fully investigated in the nineteenth century. And a casual reader might be justified in assuming that in advocating it I am as culpable as if I had proposed to reintroduce the strait-jacket and the whip into psychiatric practice. But on closer investigation one soon realizes that the nineteenth-century methods were not identical with those described in my article. The details of Allbutt's technique, which Dr. McGregor describes, illustrate this point very well. Allbutt (1872) passed a galvanic current for ten minutes through the patient's head in order to obtain a "tranquillizing effect." This is surely quite different from the method that I described, the differentiating features of which are: (*a*) that the procedure is used as an aid to psychotherapy; and (*b*) that a period of psychological stimulation is produced by a series of short faradic shocks, followed by a period of depression produced by barbiturate anaesthesia. In fact the only similarity I myself can see between these two methods is that both make some use of electricity in the treatment of mental disease. And incidentally they have this point in common with the electric convulsion therapy which Dr. McGregor champions so ardently. Surely if we are going to follow Dr. McGregor in condemning faradic shock therapy because something vaguely similar was practised in the nineteenth century, we must also decry Berger's electroencephalography because Caton in 1875 showed that electrical changes occurred in the brain, and his work aroused very little comment.

I was interested to read Dr. McGregor's explanation of the method of production of the convulsion which I described. He says "it was possibly brought about by summation of subliminal stimuli." But the "subliminal stimuli" were applied at intervals of twenty-four hours, and summation is generally not supposed to occur if the interval is longer than twenty-thousandths of a second. So I feel that in making this suggestion he is taking up rather an unorthodox attitude to the accepted views on the physiology of the nervous system.

As for Dr. McGregor's allegation that my statements regarding the dangers of convulsion therapy were "unwarranted" and "misleading," it seems that he wrote his letter without bothering to consult the four references which I gave in support of those statements. And also it is apparent that, although he is so well acquainted with the West Riding Lunatic Asylum Medical Report for 1872, he is unfamiliar with the issue of the *Journal of Mental Science* for 1941 (p. 230) in which Cook and Sands give eleven references to papers on spinal fractures resulting from convulsion therapy. I envy Dr. McGregor his good luck in having induced 1,800 major fits without the occurrence of any complications. But at Winson Green Hospital we make a routine radiological examination of every patient before and after a course of convulsion therapy, and I am sorry to say that out of 101 patients, with 1,015 convulsions, we have had 21% of cases of fractured vertebrae. A more detailed account of these facts is in preparation for publication.

Finally, I must refer to the only valid criticism contained in Dr. McGregor's letter—namely, that faradic shock therapy is rather painful and unpleasant to the patient. I am of the opinion that it is no more unpleasant than chemical convulsant therapy, but some patients certainly do become apprehensive and express their dislike for the treatment in no uncertain terms. However, the unpleasantness *per se* cannot be regarded as a contraindication to any treatment, otherwise we would have to veto a large number of the routine manipulations of surgery. The important factor in every case is the therapeutic efficacy of the treatment, and if the results are good enough they may well justify a degree of unpleasantness far exceeding that of faradic shock therapy.

In conclusion, I would say that at the present time our ignorance in this field of shock therapy far outweighs our knowledge. We do not know how the convulsions are caused, we do not know why they produce therapeutic results, there has been no final evaluation of those results, nor do we yet know all the dangers of the treatment. This being the case, every investigation is welcome which attempts to throw light on the problem. And the results of such an investigation should be criticized in a scientific manner, in order to distil from them whatever small particle of truth they may contain. —I am, etc.,

Birmingham, April 15. GERALD CAPLAN.

Treatment of Scabies

SIR,—The aetiological agent of scabies is the itch mite, or acarus. The acarus lives upon the skin, which is penetrated only by the female parasite. The male dies after copulation and the female after the ova (fifty in number) are laid. In four to eight days the larvae are hatched and the cycle from egg to adult takes seven to thirteen days.[1] The ova are laid in burrows in the epidermis, and the larvae on hatching bore into the sides and floor of the main burrow.

The parasiticide must be brought into contact with the ova, larvae, nymphs, and parasites, or these must be removed mechanically in order to effect cure. This is materially assisted by using a soap, such as soft soap, with an oleate or stearate of potash, which is a strong keratolytic.

The classical treatment of scabies uses sulphur as the parasiticide, but opinions vary as to the strength to be employed. Roxburgh[1] advises 5 to 10%, Andrews[2] 10 to 15%, and Hoffmann[3] 25%. The customary course takes three days. Modifications of the sulphur treatment have been used, such as mitigal and kathiolan. The treatment with sulphur has in recent years been to some extent superseded by benzyl benzoate (a distillate of balsam of Peru). The benzyl benzoate is prescribed with equal parts of soft soap and isopropyl alcohol. A course of this treatment takes twenty-four hours. A rotenone preparation has recently been put on the market. This treatment requires two and a half days.

The aim in the treatment of scabies is the achievement of cure in the shortest time possible without the production of dermatitis medicamentosa. It is an established fact that sulphur will produce dermatitis, but this should not occur if the treatment is limited to three days. It is claimed[4] that the benzyl benzoate treatment, lasting for one day only, is free from the danger of dermatitis, and it was hoped that similarly the rotenone preparation would not cause irritation in the two and a half days required for treatment. In my own experience I have found that sulphur will produce a cure in three days, and that with few exceptions there is no following dermatitis. In the case of the rotenone preparation, however, two and a half days' treatment appears almost invariably to give rise to dermatitis. Benzyl benzoate treatment if limited to twenty-four hours is apparently free from following dermatitis. I am not satisfied, however, that a cure is achieved. The reason for this statement is that I cannot conceive, nor have I found in practice, that all the ova, larvae, nymphs, and parasites are reached by the parasiticide. As the larvae are in subsidiary burrows running from the main burrow, it seems to me impossible that all these subsidiary burrows are opened up and all the larvae killed. If some larvae remain untouched they will mature, and only if treatment is continued will they in their turn be killed. It is not the strength of the parasiticide that is important but its power of penetration. I believe that it would be illuminating to compare a series of cases treated with benzyl benzoate with one treated with sulphur, both over a period of twenty-four hours.

In conclusion I should mention that any twenty-four-hour treatment must be very thorough, and the preliminary bathing and breaking down of burrows must be effectively carried out. This appears to me to be difficult of attainment in ships at sea. On the other hand, any three-day treatment, depending to some extent on the maturing of the parasite, does not necessarily have to be so carefully done, nor is the bathing of such immense importance. This type of treatment is, I feel, more suitable for use at sea.—I am, etc.,

R. WORKMAN CARSLAW,
April 7. Surgeon Lieutenant, R.N.V.R.

[1] Roxburgh, A. C. (1937). *Common Skin Diseases*, 4th ed., Lewis, London.
[2] Andrews, G. C. (1938). *Diseases of the Skin*, Saunders, Philadelphia.
[3] Hoffmann, E. (1937). *Die Behandlung der Haut- und Geschlechtskrankheiten*, Marcus and Weber, Berlin.
[4] King, R. E. (1940). *British Medical Journal*, **2**, 626.

National Wheatmeal Bread

SIR,—There is to be found in this week's *Radio Times* an excellent half-page advertisement of the virtues of the wholegrain flour. It is brief; it is non-technical; it is clearly written: it is issued by the Ministry of Food. It ends with the words, "Order it from your baker." How encouraging when advertisers recommend to our people their ancestral food and not the output of the patent medicine manufacturers. But how disappointing to find that the baker is not "playing," for a tour of the bakers' shops asking for national wheatmeal bread and quoting the Ministry of Food produced answers thus: (1) I am not baking this loaf; (2) My brown loaf is practically the same; (3) There is no demand for this. So now what? Is a good piece of public health work to fail through non-collaboration at the retail end?

A little judicious canvassing by the profession would seem to be indicated here: a few kind words to the local baker; and in the houses of the patients a certain disapproval of that mass of meaningless starch—the white loaf; a suggestion that what was, until recently, the traditional food of England is a source of well-being and very pleasant to eat.—I am, etc.,

Henley-in-Arden, April 15. R. G. HODDER.

An Unusual Case of Diphtheria

SIR,—One of us (M. G.) was called out to a child, aged 14 months, suffering from a "sore mouth." It had a temperature of 99.8°, and on examination a sore-looking sloughy patch was seen surrounding the right central and lateral incisors. The throat was absolutely clear. The patch did not look diphtheritic, the face was not greyish, and there was, indeed, nothing about the case to suggest its true nature. The teeth were discoloured at the point where the condition appeared to have started, which was not surprising, as the child had been artificially fed and was somewhat rickety. The condition was obviously not thrush, and a tentative diagnosis of Vincent's angina was made. Sulphapyridine was given, as it was felt that the child was rather young for nicotinic acid. The local condition improved markedly and the patient was obviously much better.

The case was so unusual and the appearance so unfamiliar that the other of us was called into consultation. We were unable to make up our minds definitely, although we both felt that it must be either a Vincent's angina or an extension of some infection, probably streptococcal, from the teeth mentioned. At this time the patch was roughly circular and half an inch in diameter. It lay both behind and in front of the teeth. Diphtheria was considered, but, despite the suggestive temperature, the general picture and the age of the child virtually ruled it out. The same applied to thrush, the appearance alone settling the matter. We sent a swab from the slough to the county pathologist for examination, and were astonished to find that it yielded a pure culture of *B. diphtheriae*. A further careful search was made for signs in the throat, but there was nothing beyond a slight deepening of the usual red colour. The child was given 20,000 units of antitoxin, and the improvement which it was already showing on sulphapyridine was much accelerated.

Neither of us is aware of another case like it; but we lack facilities for a search of the literature. We think that the unusual site, the fact that it is the only case in a small town which was most thoroughly immunized by the County Medical Services only last year, and that it was so atypical in appearance make it worth recording. We see a fair amount of diphtheria, much of it not typical, and we swab all throats in which there is any suggestion of a membrane or of follicular spots larger than the usual, however unlike diphtheria they may be. As the negative cases are usually streptococcal we give sulphanilamide (or sulphapyridine if we think there might be danger of pneumonia) in those which we judge to be not diphtheritic, and antitoxin to the rest. Occasionally we are wrong; but we have found that the drugs mentioned have such a powerful curative effect on true diphtheria that when we

get a positive diagnosis over the telephone the case is so much improved that we give antitoxin more as a matter of conscience than as a necessary remedy.—We are, etc.,

ANDREW KEFALAS, M.A., M.B.
Blaenavon, Mon. MAURICE GOLDIN, M.B.

Repair of Lacerated Eyes

SIR,—I read with great interest the paper by Mr. R. Lindsay Rea (April 12, p. 555). The author of this ingenious operation is not Kuntze but Kuhnt. The success depends upon the flap of conjunctiva being not perforated. If the conjunctiva is torn, the bridge may be prepared with the base only being adherent, the top being free and being fixed to the raw or roughened wound of the eyeball. During the last war, in the Russian Army, I often had to operate on eyes where no conjunctiva was available or the conjunctiva was in a bad state as a result of trachoma. In my desperation I tried a free flap from the mucosa of the lips of the patient, carefully cutting away all fat and leaving only the mucosa and submucosa. The result was excellent and no infection followed. The submucosa surface, of course, is to be applied to the wound.—I am, etc.,

London, E.1, April 13. N. PINES.

Medical Planning Commission

SIR,—In this Division during the past months much time has been spent and will continue to be spent in general meetings of the profession and meetings of subcommittees in discussing the future of medicine. All members of the profession are invited to participate. By this means our knowledge and experience of the problems concerned are enlarged and our views are crystallized; we are in close touch with our local representative on the Planning Commission, who is thus kept informed of the opinions of his particular community, and it is proposed to submit any memorandum which may be drawn up as the result of our deliberations to the Commission and to publish it more widely. Apart from the benefits which we derive from these deliberations, and which we may be able to pass on to others, we feel that we are doing something to clear the ground for later action when those of our colleagues who are now away on Service return.

My committee has requested me to make this communication so that others—and especially those who are away on Service—may know that some constructive as well as destructive work is being done, and we have no doubt that similar work is being done in many other Divisions. The place of British medicine has always been high and in many respects unique. It is the responsibility of every member of the profession to contribute his part towards ensuring that changed social and economic conditions do not find us unprepared. There is such an abundance of work to be done that too many cannot be engaged upon the discussions and deliberations essential to the achievement of the best medical services.—I am, etc.,

JOHN T. INGRAM, M.D., F.R.C.P.,
Leeds, April 15. Chairman, Leeds Division, B.M.A.

SIR,—The Chairman of the Council stated (April 12, p. 569) that the work of the Planning Commission will be tested as it proceeds "and the views of the Divisions and Branches will be invited before coming to any important conclusions." For this purpose it would be very useful if a summary of the data which the Commission and its committees use could be published in the *Journal* as soon as possible after they have been considered. This would give members time to weigh the evidence before meetings of Branches are held, and it would enable them to send to the Commission some information which might not otherwise reach it. The *Journal* might not be able to publish correspondence arising out of the summaries, but members would have a real chance to test the Commission's work by considering slowly—not hurriedly—the same evidence as the Commissioners.—I am, etc.,

London, W.1, April 15. J. M. ALSTON.

SIR,—In the weekly space devoted to the Medical Planning Commission it is a relief to note an increasing emphasis upon detailed suggestions likely to be helpful to the Commission as actually constituted. The Commission will, I feel, enjoy the fullest confidence of the profession as soon as its *modus operandi* is seen to be elastic and not hide-bound by precedent and tradition. Mr. H. S. Souttar in his reassuring letter (April 12, p. 569) voices the need for the fullest possible criticism of the Commission's findings whenever and however these come to be divulged; but he assumes too readily, in my opinion, that the ultimate submission of these findings to various branches of the profession and to B.M.A. Divisions will provide adequate discussion and consideration. The experience of many members with regard to two pre-war "reforms" does not bear this out: three years ago, over both the "Medical Service for the Nation" plan and the subsequent proposals for limited panels for medical aid in childbirth the profession as a whole was presented as nearly as possible with *faits accomplis*. In the former case the main details of the scheme were first seen by many doctors through public advertisements in the *Radio Times*, while in the latter the frantic eleventh-hour discussion which centred around "Ministry of Health Circular 1705" made it quite clear that the rank and file of medical practitioners felt they were being "sold," and in this they were loyally supported by their colleagues specializing in obstetrics and gynaecology. So much, then, for that method; it is unpopular here.

I feel strongly that the numerous complex problems raised by the present situation require the fullest possible ventilation in the light of day *before* any concrete proposals are put forward as well as afterwards. To say "the views of the Branches and Divisions have been fully consulted and are in agreement on all major points, etc.," is all very convincing in theory and, on paper, looks the height of democratic form and thoroughness; in actual fact, as a little anamnesis concerning the average B.M.A. Branch meeting on any vital issue will reveal, such a procedure is the very reverse of thorough. Need we so hastily condemn "the pathetic suggestion of a questionary"?

Without trespassing too freely on your valuable space I should like here to give vent to my own personal fears regarding the pitfalls of a State Service. I feel there is a real danger that all the bureaucracy of the present public health services will tend to be incorporated. Let me quote two examples: (*a*) Under the present E.M.S. arrangements surgical cases are transferred daily, often at an hour's notice, from beds in the voluntary hospital to a near-by municipally controlled hospital; yet, from this municipal hospital these same patients cannot be sent home for at least twenty-four hours after I have discharged them as fit. (*b*) Under the existing "inefficient" system, soon to be consigned to the museum of antiquities, a practitioner or surgeon is accessible, in person or by deputy, to all his patients for twenty-four hours a day and seven days a week untrammelled by a single inch of red tape. In many of the public medical services which have already invaded spheres of private practice the week-end and the bank holiday are as sacrosanct as in any shop or office, and—this is the vital point—but for the collateral operation of the old and tried "G.P." system the shortcomings of the newer service would have been more apparent than hitherto.

Finally, I think that the Commission as at present constituted and without access to *all* possible shades of opinion will tend to organize the new health services from specialist downwards instead of from the lowliest practitioner upwards. Let, therefore, our watchword be: "Seek ye first" the keen, observant clinician, unhampered by even as much bureaucratic control as under existing N.H.I. arrangements, with far better pay than under the present panel system (or, at any rate, with regional discrimination should capitation fees be adopted), a minimum of unessential clerical work and a maximum of opportunity for extending his knowledge and for applying his wealth of clinical material to scientific advancement; consummate this product of 3,000 years of patient evolution in every corner of the globe, the general practitioner; and you need have no fear for your hospital policy, your consultant and public health services, for "all these things shall be added unto you."—I am, etc.,

Huddersfield, April 14 W. E. THOMPSON.

SIR,—I believe that some of your correspondents are unduly disturbed about the high proportion of "consultants and specialists" appointed as members of the Medical Planning Commission. It has been my experience, acquired, I must

admit, very largely in the United States, that efforts to raise the standards of quality in medical care have usually come from men who have specialized. And the first consideration in planning the medicine of the future is that the quality of care shall be improved. This is the peculiar contribution which our profession is qualified to make. The administrative and economic aspects of medical care will, whether we like it or not, be largely determined by laymen. Since good medical care cannot be cheap, it will be an important function of your Commission to inform the public on the prerequisites of good care: the importance which we attach to hospital and laboratory facilities, and the need for every doctor to have access to these and to the opinion of his colleagues who have specialized whenever he feels such an opinion to be in the interest of his patient. Also we must insist on the importance of medical research.

I heartily agree that the younger members of the profession should be represented, since they have the greater stake in the future of our profession. If they are not adequately represented on the Planning Commission it is only reasonable to suppose that they will form their own organization and present, if they feel it necessary, their separate recommendations.—I am, etc.,

Delmar, New York, March 4. J. ROSSLYN EARP.

Safeguarding the Medical Services

SIR,—The maintenance of the medical services is of greater interest to the nation than is the welfare of individual practitioners. Only when the cumulative effect of an increased number of individual disasters threatens to jeopardize the efficiency of the services will the Government find reason for concern. In such case, what more natural course could it follow than take the whole profession under its wing and form a national medical service? The profession, in straits, would have little power to dictate terms.

Is it not the duty of those of us who have suffered little from the ravages of war to see to it that the position of the individual members of our profession is so secured that such a calamity becomes impossible. The steps so far taken to this end have been dictated by the experience of the last war, when it was discovered that absentee members suffered loss to the benefit of those who stayed at home. These measures have, for a variety of reasons, among which may be mentioned bombing and the migration of populations, come short of expectation. Some home members, for whom no provision has been made that is not subject to the haphazard of coincidence or accompanied by the stigma of charity, have suffered even greater loss than absentee members.

In this unprecedented situation the threat to the effective running of the medical services must be met with unprecedented, even novel and revolutionary, measures. The immediate threat is to individual members of the profession. But the maintenance of their welfare is as essential to the medical services as the care of the soldier is to the prowess of the battalion. As this is a matter in which the Government is interested, a claim to their co-operation in the following scheme is not unreasonable. The suggestion is briefly: That a demand for an additional percentage of his income-tax payment be made to each member of the profession (it does not seem likely that it will need to be a large one); that this additional payment go to the formation of a fund; that from this fund payments be made to medical men whose incomes, *ceteris paribus*, have fallen below a certain percentage of their pre-war incomes—say, below a half—to raise them to two-thirds (with certain limitations) or, alternatively, to ensure to each member a subsistence.

Such a scheme has the virtue of: (1) Being simple, unerring, and fair in its exaction of tribute. (2) Calling for no casuistry on the part of the home practitioner in determining between *meum* and *tuum* in his relationship with the absentee practitioner. (3) Affording more prospect than the present arrangement of a livelihood to the absentee on his return, and giving it to the home practitioner also (the retention of practices being dependent now not only upon the attitude of patients but also upon their migration). (4) Covering all grades of the profession—consultants, specialists, G.P.s. (5) Making more easy the transfer of anyone to the E.M.S., whether that transfer become necessary through national emergency or personal straits. (6) Abolishing the humiliation of receiving charity. (7) Protecting the profession from an impoverishment that might make it (or, at any rate, many of its members from necessity and others from commiseration) too ready to accept a national medical service that meets the requirements of an oligarchy of statisticians rather than the taste of the public and the profession itself. (8) Compensating the Government, via the Exchequer, for the clerical work entailed through the extra income it gathers from the taxation of the amounts allocated.—I am, etc.,

Glasgow, April 18. W. MELVILLE CHRISTIE.

Medical Man-power

SIR,—With reference to your leading article (April 12, p. 559) dealing with the very important question of our decreasing medical reserves, might I suggest that pooling of the talents of medical men and women in the civil and fighting Services is often possible, and that this would go a long way to solving our difficulties.

Fully and partially mobilized medical units are often stationed for considerable periods in the vicinity of towns with large and under-staffed civil hospitals. These units, comprising many hundreds of medical men, are for the most part in reserve and not functioning in a medical capacity. Their officers, separated from clinical work, tend to become bored, and, with the passage of time, their efficiency suffers. If they were temporarily attached to civil hospitals they would supply a pressing need and at the same time maintain unimpaired their clinical capacity. A few officers would have to be retained at their units for administrative purposes; the training of the medical personnel as a whole could be kept up by short concentrated courses, and their services lent when not so engaged.

A major objection to such a procedure might be that such units must be prepared at short notice to proceed to a theatre of war. Such a difficulty could be overcome by other units in the process of formation taking over the civil functions of their predecessors, or, where this is not possible, a pool of senior medical students could be on tap to fill the junior vacancies during the period of transition.

Doubtless there are many other ways in which co-operation could be effected, but the procedure outlined above, owing to the large numbers of medical personnel involved, should prove important.—I am, etc.,

Hatfield, April 14. H. L. DUNN.

Nurse Anaesthetists

SIR,—Mr. F. MacG. Loughnane (March 22, p. 463) has upheld the nurse anaesthetist. Surely, without any adverse criticism of the nursing profession, to hail the advent of the nurse anaesthetist to the hospitals of this country is a retrograde step. The calling of the anaesthetist specialist is an essential one. Those who have seen the tragedies and the difficulties which result from the badly administered anaesthetic, the tired anaesthetist flustered and perspiring, know that for the safety of the patient and the smooth working of the theatre the expert is an essential. I have found that the better the surgeon the greater the recognition given to the anaesthetist.

The surgeon's income is not derived alone from the operations he performs, but from consultations, examining students and graduates for higher degrees, arbitration on accident cases, etc. The anaesthetist who gives his whole time to his specialty has only the private anaesthetic from which to derive his income, and is lucky if he can claim one-tenth of the surgeon's operation fee. In many cases the necessity to augment the income by private general practice is the sole reason why the anaesthetist cannot undertake all hospital work.

The answer is that if anaesthesia is to be efficiently undertaken in hospitals the hospital authorities must pay the anaesthetist a reasonable salary, not £20 or £50 a year, as some do. The anaesthetist can then give his whole attention to his very important work: not only important to the patient, but also to the student, who so often learns to anaesthetize by his mistakes rather than by the advice of his teacher, and the surgeon, assistant surgeon, and clinical tutor would have a "real necessity" and not a "luxury" as Mr. Loughnane terms the specialists in anaesthetics.

In the operating theatre the patient comes first. It is the patient's life which is in danger, so often from the anaesthetic and so seldom from the operation, and good anaesthesia is essential. An anaesthetist should be able to administer every type of anaesthetic, take charge of the patient should any incident arise, and should, in my opinion, feel competent to open the abdomen in order to carry out cardiac massage if need should arise. There are "ear and throat" and "eye" surgeons who, on their own admission to me, have never opened an abdomen, and ear and throat operations have a way of causing respiratory difficulties on occasions. To be competent to do this is asking a great deal of a young doctor and too much of any nurse. Anything less than this competence would tend to lower the already too slow increase in prestige which is due to the specialist anaesthetist.—I am, etc.,

April 2. A. M. DUFF, Lieut.-Colonel, R.A.M.C.

SIR,—May I add one more opinion in favour of nurse anaesthetists from the surgeon's point of view. In America two years ago I had an opportunity of watching carefully the administration of anaesthetics by nurse anaesthetists in some of the most important surgical clinics there. The skill and efficiency of these technicians were remarkable; I have not seen in any European country such an all-round high standard. The objection to the present system in Great Britain and Ireland has been partially referred to by Mr. F. MacG. Loughnane (March 22, p. 463), where he stated that anaesthetists should attend at every hospital operation list. What about emergency operations, which frequently demand the greatest skill on the part of the anaesthetist as well as the surgeon? It was a rather uncommon occurrence in my student days—and probably is to-day—to see the official anaesthetist attending for emergency operations. It was found on those occasions that the house-surgeons could "carry on," yet on the mornings following, when the anaesthetist was in attendance, the house-surgeon had apparently lost the inspiration which Providence had bestowed on him the previous evening when it was not convenient for the anaesthetist to attend.

There are few branches of medicine more important and certainly none more neglected than anaesthetics. The position is bad enough in teaching hospitals, but is worse in hospitals situated in small centres like the county hospitals in Ireland, where, in many cases, the administration of anaesthetics is the *duty* of house-surgeons, who may be newly qualified, untrained doctors. I, personally, have performed operations with a doctor as anaesthetist who had never given an anaesthetic previously. I can go further and state that patients have died at operation, and I did not feel too sure that death was not due to an overdose of anaesthetic. The latter is a very difficult thing to prove, and no doctor wants to prove it. This system, it will be observed, is permitted in local government hospitals in Ireland, where the standard of anaesthesia is exceptionally poor.

Whatever may be said by doctors against nurse anaesthetists, I think few of us would voluntarily agree to an operation on ourselves with an untrained doctor giving an anaesthetic; on the other hand, few of us who have seen these technicians work would refuse an anaesthetic at their hands. There is an obvious economic difficulty in appointing doctors as anaesthetists to every hospital, particularly in small centres, but it seems to me that the sooner nurse anaesthetists are appointed in every hospital, with or without a doctor anaesthetist, the better for our patients and public health; we shall have far less "post-operative complications" and a reduction in "operative mortality."

I congratulate the Board of Addenbrooke's Hospital on their enterprise in appointing nurse anaesthetists; their action will be welcomed by the great majority of surgeons who, like myself, have not the "luxury" of special anaesthetists. None of us will deny the need for special anaesthetists and for research work in anaesthesia in suitable centres. The appointment of nurses who are competent to give anaesthetics will not hinder progress. On the contrary, it will produce a far wider use of several anaesthetics available to-day (but which we do not use); it will supplant the present deplorable system in many of our hospitals; and provide surgeons and patients alike with an essential now long overdue.—I am, etc.,

Croom, Co. Limerick, April 3. J. F. O'CONNOR, F.R.C.S.I.

The Services

COLONEL COMMANDANT, R.A.M.C.

Major-General H. P. W. Barrow, C.B., C.M.G., D.S.O., O.B.E., late R.A.M.C. (ret.), has been appointed Colonel Commandant, Royal Army Medical Corps, from August 27, in succession to Major-General R. S. Hannay, C.B., C.M.G., D.S.O., late R.A.M.C. (ret.), who has attained the age limit.

CASUALTIES IN THE MEDICAL SERVICES

INDIAN MEDICAL DEPARTMENT

The name of Lieut. E. A. COTTON is included as "Died" in an India Office Casualty List published on April 16.

INDIAN MEDICAL SERVICE

Wounded

Captain Charles Westland Greene.
Captain H. C. Rogers.

DEATHS IN THE SERVICES

Colonel THOMAS BOSWALL BEACH, C.M.G., C.B.E., late R.A.M.C., died at Reading on April 3, aged 74. He was born at Brompton on May 28, 1866, the elder son of the Rev. Canon W. R. Beach, Chaplain to the Forces, and was educated at Bloxham and at King's College Hospital, where he gained the Warneford Scholarship and worked under Lister. He took the M.R.C.S., L.R.C.P. in 1899 and, after serving as house-physician at King's, entered the Army as surgeon in 1891, passing first both into and out of Netley. There he gained the Herbert Prize allotted to the best man of the term and the Montefiore Medal and Prize for Military Surgery. He became lieutenant-colonel in 1912, colonel in 1915, went on half-pay in August, 1919, and retired four months later. He served in the South African War in 1899–1902, when he took part in the advance on Kimberley, including the actions at Belmont, Enslin, Modder River, and Magersfontein; and in operations in the Orange River Colony, including the actions at Paardeberg, Poplar Grove, Driefontein, Vet River, and Zand River; in the Transvaal, in the actions at Pretoria, Johannesburg, and Diamond Hill; and in Cape Colony. He was mentioned in dispatches in 1901, received the Queen's medal with seven clasps and the King's medal with two clasps, and was promoted major. In the war of 1914–18 he was mentioned in dispatches in 1916 and received the C.M.G. in the same year and the C.B.E. in 1918, after serving as A.D.M.S. at Alexandria. He had been a member of the British Medical Association for fifty years.

Lieut.-Colonel AUSTIN ROMUALD O'FLAHERTY, R.A.M.C. (ret.), died at Westward Ho! on April 8, aged 71. He was born on February 7, 1870, received his medical education at the London Hospital, and took the L.S.A. in 1897 and the M.R.C.S., L.R.C.P. in 1901. Entering the R.A.M.C. as lieutenant in 1898, he became lieutenant-colonel in 1915, and retired in 1921. After his retirement he was for many years in practice at Torrington, Devon, where he was surgeon to the cottage hospital and a member of Great Torrington Borough Council, serving as mayor in 1927–8. He served in the operations in Sierra Leone in 1898–9 (medal with clasp); in the latter part of the South African War in 1902, in operations in Cape Colony (Queen's medal with three clasps); and in the war of 1914–18, when he was mentioned in dispatches in 1917. He had been a member of the British Medical Association for thirty-nine years and was chairman of the Barnstaple Division in 1929–30.

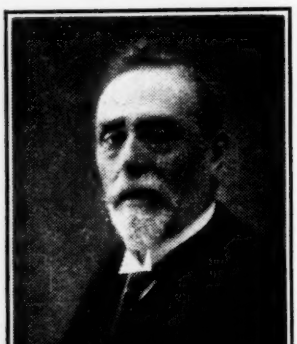
Lieut.-Colonel PERCY HILDEBRAND COLLINGWOOD, R.A.M.C. (ret.), died at Bristol on April 11, aged 60. He was born at Deesa, India, on April 2, 1881, received his medical education at St. Thomas's Hospital, and took the L.S.A. in 1897. Entering the Army as surgeon lieutenant in 1898, he became lieutenant-colonel in 1915, and retired in 1922. He served in the Nile campaign of 1898, receiving the medals and the Egyptian medal, and in the operations in 1903–4 in the Aden hinterland, where he was senior medical officer. He had been a member of the British Medical Association for seventeen years.

We have received from Messrs. Davis and Orioli, 1, St. Martins Street, Wallingford, Berks, a copy of their catalogue (No. 98) of historical books on genetics, evolution, and heredity, from the collection of Prof. R. C. Punnett, F.R.S., who has lately retired from the chair of genetics at Cambridge.

Obituary

PROFESSOR M. HAJEK

Prof. Markus Hajek, the famous laryngologist, whose death at the age of 79 we announced on April 12, was one of the most popular figures at international congresses, and one of the most popular teachers in the medical world. When, after having attained the legal age limit, he had to resign his clinical position, a special volume of the *Monatsschrift für Ohrenheilkunde*, etc., was dedicated to him; it contained 150 contributions by authors all of whom were former pupils of Hajek. The following appreciation is from the pen of a British colleague:



With the death in London of Prof. Hajek there passes the last of the professors of laryngology who made Vienna the Mecca of that specialty, ever since Türck in 1858 demonstrated the clinical application and value of Garcia's invention of laryngoscopy in 1855. Türck instructed Morell Mackenzie in the new art, and his beautiful album of water-colour drawings of the laryngeal conditions it rendered visible were piously shown to successive generations of students down to our own days. He was succeeded by such pioneers in the art as Schrötter, Stoerck, and Chiari. When the two chairs of laryngology were amalgamated with the two of otology—made famous by the work of Politzer and Gruber—one of the clinics of oto-laryngology was put under the direction of Hajek and the other under the popular and successful Neumann, who died recently in New York, also, like Hajek, an outlaw and an exile from their beloved Vienna.

In the nineties of last century Hajek began his career as assistant in the Poliklinik to Schnitzler, whose daughter became his devoted wife. His brother-in-law was the well-known dramatic author Arthur Schnitzler. It was at the Poliklinik that Hajek laid the basis of his life's work, by making the beautiful dissections of the anatomy of the nose and accessory sinuses which he demonstrated to his large class of students, often composed of numbers of English and Americans. Zuckerlandl's classical work on nasal anatomy, and Onodi's atlas of the same subject, had then been published, and these works and Hajek's teaching were the principal factors in spreading the knowledge of this region of the body, which until the end of last century had been only incompletely explored. Hajek, in his lectures, did much to demonstrate the clinical importance of personal and direct acquaintance with the anatomical arrangements and the frequent irregularity of this region, where danger and disaster are so ready to attend any mistaken route or any intrepid interference. His class was held at 8 o'clock in the morning, and was always full. It was followed by his clinic.

He taught with enthusiasm and with great clearness of demonstration, urging his pupils to seize every opportunity for handling wet specimens, of making their own collection, and inviting them always to note the frequency in the size, shape, and extent of the paranasal cavities, as well as the occasional absence of one or more of them. During these years he was also accumulating the material for his classical work on diseases of the nose. His large publication on diseases of the larynx—which has been translated into English—was based on later work when he had left the Poliklinik for the Allgemeines Krankenhaus. Here he remained, teaching gradually dwindling classes during the post-war period. Hajek visited London when he delivered the Semon Lecture in 1928. He foresaw the clouds gathering for the second great war. Years ago he told the writer of this notice that Austria must inevitably fall into the clutches of either Germany or Russia. When the first of these catastrophes fell on Vienna, and the savage ill-treatment of the Jews started there, he appealed for help to this country. His fellow laryngologists and his old pupils here, as well as in Canada and America, enabled Hajek and his wife to reach London in 1938. The whole amount of money they were allowed to bring out of Austria was 10 marks each, and the only gold permitted was that of their wedding rings. He had to dispose of his gold watch before leaving Vienna. Among the few personal belongings he carefully brought over were some of his original anatomical specimens, which he gratefully presented to the Museum of the Royal College of Surgeons. The library there also accepted some original notes of his lectures made by a visitor to the Poliklinik in 1893. He arrived here broken in health, but his dwindling years were made as comfortable as circumstances would permit. He was most appreciative of his reception and of his welcome in the Section of Laryngology of the Royal Society of Medicine, of which he was one of the few Honorary Members. It was touching to hear how cheered he was simply by the sense of freedom and liberty in this country, explaining that this was daily shown by his being permitted to sit down on any seat, in any public park or garden, without being driven off by a member of the Gestapo.

Hajek was not commercially minded. His enthusiasm was for research, for writing, and particularly for attracting and teaching students. This teaching was made welcome by his evident eagerness to demonstrate the importance of intimate knowledge of anatomy in the practice of our art. In his work, his writings, and the inspiration of his pupils he was what the French call "*un grand maître*." It is distressing to think that the last two professors in what used to be the most famous school of laryngology in the world were driven from Vienna to die in exile. We have some little comfort in recollecting that they found welcome shelter in the two great democracies.

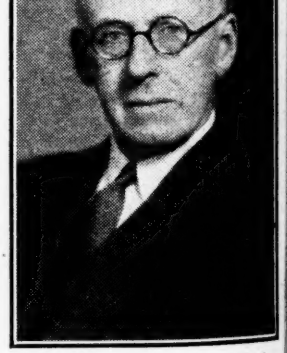
SIC. T.

DAVID FORSYTH, M.D., D.Sc., F.R.C.P.

Consulting Physician to Charing Cross Hospital

We regret to announce that Dr. David Forsyth, for many years physician to Charing Cross Hospital and the Evelina Hospital for Children, died on April 10 at his home in Weymouth Street. He was a general physician who made a special study of childhood and whole-heartedly embraced the doctrine and technique of psycho-analysis.

David Forsyth, son of Alexander Forsyth, M.D., was born at Greenwich on November 24, 1877. He studied medicine at Guy's Hospital and won the Rogers prize of the University of London after graduating in medicine in 1902; he took the M.D. degree in the following year and the D.Sc. in 1908, and became a Fellow of the Royal College of Physicians of London in 1910. After serving as demonstrator of physiology at Guy's he was elected to the visiting staff at Charing Cross and later at the Evelina Hospital, and for many years worked in the out-patient department and wards of both institutions. As a teacher at Charing Cross Dr. Forsyth made friends with generations of students and won their affectionate regard. He was a past-president of the Section of Psychiatry of the Royal Society of Medicine, and after the last war served as senior physician to the Psychiatric Clinic of the Ministry of Pensions. He was a member of the Child Study Society, the British Psychological Society, and the International Psycho-Analytical Association. His earliest book was *Children in Health and Disease*, published in 1909; *The Technique of Psycho-Analysis* followed in 1922, and *Psychology and Religion* in 1935. Among his many papers on the mental aspects of health and disease may be mentioned those on



diagnosis of neurotic conditions in general practice published in the *British Medical Journal* and on the psychological effects of illness on children published in the *Lancet*, also contributions on psycho-analysis to the *British Journal of Psychology* and the *Psycho-Analytical Review*. He was the author of a paper on the care of children under school age in the *Journal of State Medicine*, a report to the Ministry of Health on the mental health of the child, and of sections on the medical inspection of children in the City of Westminster Health Society's annual reports 1912–16.

"M.B." writes:

It must have needed great courage, twenty-five years ago, for a physician in a teaching hospital publicly to declare himself favourable to Freud's doctrines. All medical circles would nowadays accept (with more or less graciousness) much that formerly provoked ridicule and contumely. Such prejudice Dr. Forsyth was willing and able to bear, and consequently generations of students were enabled to diagnose and appreciate the "psychogenic" symptom many years ahead of accepted teaching. Forsyth's uncompromising advocacy of clear and progressive thinking inevitably led to some unpopular conclusions concerning not only medicine, but politics and religion also. While not insensitive to public feeling, his battling with custom, prejudice, and disease remained unmodified. Hospital work offered no scope for the psycho-analytic therapy in which he excelled, so that it is left, perhaps, even more to his patients than his colleagues to appreciate the fineness of his therapeutic gifts, his soundness of judgment, and his integrity. His loss will touch many people very deeply.

[The photograph reproduced is by Elliott and Fry, Ltd.]

A. STANLEY GRIFFITH, C.B.E., M.D.

We regret to announce the death on April 9 of Dr. A. Stanley Griffith, whose important scientific studies of tuberculosis earned him the Weber-Parkes prize and medal of the Royal College of Physicians in 1927. He had lived for many years past at Newnham Croft, Cambridge, working at the University Field Laboratories as a member of the scientific staff of the Medical Research Council.

Arthur Stanley Griffith was born in 1875 and graduated M.B., B.Ch. of the Victoria University, with honours, in 1897, whereupon he was awarded the Derby exhibition at the Liverpool School of Medicine. In 1901, after holding for two years the Alexander Fellowship in Pathology at the Thompson Yates laboratory in Liverpool, he proceeded M.D. and obtained the D.P.H. of the English Royal Colleges. Stanley Griffith's quality as a bacteriologist then found recognition and congenial employment for seven years (1903–10) as resident scientific investigator under the Royal Commission on Tuberculosis; when that task came to an end with publication of the Commission's final report he continued to work at his subject with a Grocers' research scholarship, and held this for three years until he joined the scientific staff of the Medical Research Committee, as it was then known. The University of Cambridge gave him the Ph.D. degree in 1926, and his services to medical sciences and public health were publicly acknowledged by the award of the C.B.E. Stanley Griffith was a member of the Pathological Society of Great Britain and had been a member of the British Medical Association for forty-one years.

Sir Arthur MacNalty writes:

In 1900 Koch startled the world by his announcement that bovine tuberculosis was comparatively harmless to man. The British Government set up a Royal Commission to investigate the subject. Their chief workers at the Commission's experimental farm were Arthur Eastwood, a distinguished pathologist, and two young brothers, A. Stanley and F. Griffith, whose investigations at the Liverpool School had already revealed their brilliance and skill as research bacteriologists. In 1909, when resident medical officer at Brompton Hospital, I supplied material for the Royal Commission's investigation. It was then that I made the acquaintance of A. Stanley Griffith and his brother, an acquaintance which soon ripened into friendship in the years of co-operative work which were to come. The work of the Royal Commission, recorded in its reports, proved the pathogenicity of bovine tubercle to man. Much of this conclusion was due to Stanley Griffith's admirable technique for isolating and identifying bovine strains of the tubercle bacillus, and all the workers enhanced their scientific reputations. The Royal Commission's work finished, Eastwood and F. Griffith accepted appointments in the Pathological Laboratories of the Local Government Board (afterwards the Ministry of Health), and Stanley Griffith continued his research work on tuberculosis as a whole-time worker for the Medical Research Council at the University of Cambridge Field Laboratories, Milton, near Cambridge. As organizer and secretary of the Tuberculosis Committees of the Medical Research Council, I found his help and advice of the greatest possible value in investigating the many problems which came before these Committees.

Stanley Griffith whole-heartedly devoted himself to typing the tubercle bacilli found in various forms of non-pulmonary tuberculosis. In 1937 he reviewed the position in *Tubercle* (August issue, pp. 529–43) and gave a comprehensive table showing the percentage of cases infected with the bovine type of bacillus, the result of some twenty-six years' intensive and meticulous work. Some years previously W. T. Munro had drawn my attention to his discovery of bovine types of the bacillus in cases of pulmonary tuberculosis in Scotland. Dr. Munro and Griffith worked at this problem together, and in 1938 the latter (in a paper with Smith) showed that 9.1% of 342 pulmonary cases from rural and small urban districts in the north-east of Scotland and 4.4% of 294 pulmonary cases from the City of Aberdeen yielded tubercle bacilli of the bovine type (*Lancet*, 1938, **1**, 739). In addition to this laborious work Griffith worked with Prof. J. B. Buxton on B.C.G., and was the author of important reports to the Medical Research Council on this subject.

Stanley Griffith was a stern critic not only of other men's work but of his own. He had a high standard of scientific excellence in the light of which he worked. He "shunned delights and lived laborious days," often, one fears, at the expense of his own mental and physical powers. Tall and thin, with clear-cut intellectual features, he was modest and retiring and the kindest of men. His published papers, fundamental as they are, reveal but a tithe of the great knowledge he possessed of the bacteriology of tuberculosis. Of late years he had broken down in health, and the end when it came was a source of sorrow but no surprise to his friends.

Since writing this the sad news has come that F. Griffith and W. M. Scott, my former colleagues at the Ministry of Health, have been killed by enemy action. F. Griffith wrote to me a few days ago about his brother's patience during his long illness. The brothers were devoted to one another and in death they have not been divided.

DUDLEY M. STONE, M.R.C.S.

Senior Assistant Medical Officer, *X*-Ray Department, St. Bartholomew's Hospital

We regret to announce that Dr. Dudley Macaulay Stone, well known for his work in radiography, died on April 15, after a long illness.

He was born in London on March 3, 1881, the son of John H. Stone, M.A., F.L.S., and from Bedford School entered St. Bartholomew's Hospital, where he became very popular and distinguished himself at football and other sports. He was also an expert yachtsman, and his skill in photography went far beyond that of an amateur. After qualifying M.R.C.S., L.R.C.P. he worked as house-surgeon at the Metropolitan Hospital and then began to specialize in radiology, becoming medical officer in charge of the *x*-ray department of the City of London Hospital for Diseases of the Chest and radiologist to St. Paul's Hospital. Throughout the last war he served in France, with a number of Bart's friends, at Le Touquet, where he had charge of the *x*-ray and electrotherapeutic departments of No. 1 British Red Cross Hospital. His mastery of the technique of photography had been recognized by Dr. Lewis Jones and Dr. Hugh Walsham while he was a student, and on returning to civil life after the war he rejoined

the *x*-ray department at St. Bartholomew's as chief assistant. In private practice in Harley Street, Dudley Stone gave valued help to the patients of many colleagues, medical, surgical, and dental. Among his few published papers was one on a method of preventing dust from getting between the fluorescent screen and the lead glass, written for the *Archives of Radiology and Electro-Therapy*.

K. M. W. writes:

Dudley Macaulay Stone's death at the age of 60 removes from St. Bartholomew's Hospital a familiar figure. For forty-two years "Dobbs" has been seen there, ever since he entered King Henry the Eighth's gateway as a student of 18 fresh from Bedford Grammar School. Only during the four years of the last war was he absent from Bart's, when he was serving as radiologist to the Duchess of Westminster's Hospital at Le Touquet. Indeed, Dobbs was very rarely absent from duty. If he had not adopted a medical career he would have found a congenial career in the Navy. He had that devotion to duty, that thoroughness in the discharge of anything he had undertaken, which are characteristic of most sea-going men. And the sea had a strong fascination for him. He sailed his yacht with the same mastery with which he manipulated his *x*-ray plant. No slipshod methods were tolerated on board, as the writer, who once undertook the washing-up of plates in the forecastle, can well testify. High standards were set by the skipper and expected also of the crew. (The plates were rewashed.)

Stone could have made a success of several careers, among others as a business man. But there is no doubt that he selected the right one. Keenly interested in all forms of apparatus and a first-class amateur photographer, the growing *x*-ray department of the hospital claimed him as naturally as a pond claims a duckling. He neither attempted nor achieved any high medical distinction, for practice was of more importance to him than theory. And what an immense amount of work he got through without any fuss or bother! Nobody ever saw him ruffled, nor did the humorous glint ever depart from his eye. An extra barium meal on a morning that was already overcrowded was, after all, only a trifle. It had to be done and it *was* done. He will be more difficult to replace than many a man with glittering academic distinctions.

And he will be missed in other circles than that of St. Bartholomew's, for he was a man of many hobbies. Yachtsmen, philatelists, and business men alike will feel that a "character" has disappeared from among them. Stories will be retold, reminiscences of old Stone exchanged, memories of good times together revived. Good-bye, Dobbs. You would never have liked the usual platitudes in your obituary notice. You liked the plain unvarnished truth.

J. GRAHAM FORBES, M.D., F.R.C.P.

We regret to announce the death on April 8 of Dr. J. Graham Forbes, late Senior Medical Officer in the Public Health Department, L.C.C. James Graham Forbes was educated at Cambridge and St. Bartholomew's Hospital, qualifying M.B., B.Ch. in 1898; he proceeded to the M.D. in 1901, taking his D.P.H. in the same year. In 1904 he took the M.R.C.P., and was elected to the Fellowship in 1920. Dr. Forbes was house-physician and assistant demonstrator in pathology at St. Bartholomew's, and clinical pathologist and bacteriologist to the Hospital for Sick Children, Great Ormond Street. Among his publications was the well-known *Diphtheria, Past and Present: its Aetiology, Distribution, and Prevention*, published in 1932. We are indebted to a former colleague for the following appreciation:

The outstanding features of Forbes's character which were conspicuous in later life were those of individualism and drive, and these often made him a determined critic. These characteristics he no doubt owed to the fact that he was the son of a well-known high churchman and received his early education at Clifton. Although not of his year, I remember him as a medical student at Cambridge, where he belonged to a particular clique of students. Association, however, was more intimate in the dissecting room and in the histological laboratory, and here one was able to see the beginning of those characteristics which were so prominent in later life. I lost contact with him when he became a student at St. Bartholomew's Hospital, and association did not come again until he was pathologist at the Children's Hospital at Great Ormond Street. There is no doubt, however, that he continued his successful career at St. Bartholomew's. He held appointments there both of house-physician and of assistant demonstrator of pathology, and afterwards held various outside appointments such as surgeon to the Royal Blue Regiment, medical officer to the Anglo-French Boundary Commission, where he no doubt learned much of tropical diseases, and later again as assistant physician to the London Royal Chest Hospital. Physically Forbes never was strong, and it is surprising what an amount of energy and vigour he threw into his life's work in spite of poor health, which kept him away from duty for at least two long periods. Pathology and work in a laboratory were undoubtedly the types of work for which his mind was developed, and this is shown by the good work he did for the Children's Hospital, where he acted as their pathologist. One of his most valuable contributions as pathologist was his report on the prevalence of the gonococcus in the genitals of apparently healthy children admitted to the wards. It is a great pity that this report was never made public, for it would have saved the reputation of many doctors working in hospital and would have silenced the always too ready criticisms of lay members of hospitals, who obviously do not know anything of medicine and yet in their ignorance are only too ready to criticize and condemn the medical profession for ineptitude.

Most unwisely some of Dr. Forbes's friends advised him to give up pathology and become a school doctor under the L.C.C., for he had no interest whatever in administrative work, and the years he devoted to this task were no doubt wasted. In due time, however, an opportunity arose to transfer him to the County's Pathological Laboratory at County Hall, where he assisted the Principal Assistant Medical Officer in controlling infectious diseases in schools and carrying out the laboratory diagnostic work. It was here that he came into contact with the diphtheria control in schools. He very soon saw that diphtheria outbreaks in schools could not be controlled either by swabbing of contacts or by seclusion of carriers, and that the only remedy was universal artificial immunization of all susceptibles. From then on he made it his duty to preach this doctrine on every available occasion. Diphtheria control was the subject of his Milroy Lecture in 1929, and he made the amplification of this lecture his life's work, first in a publication by the Medical Research Council and finally in the publication of his monumental work on diphtheria, which to-day still holds the record.

Dr. Forbes retired from the Council service on attaining the retiring age in 1938, and his friends are happy to think that he was able to enjoy some three years of quiet and leisured life. To his friends he will always be remembered as a vigorous and outspoken critic on subjects of which he had made a deep and toilsome study.

EDMUND BARKER, L.R.C.P. & S.Ed., L.R.F.P.S.G.

For many years one of the best-known medical figures throughout the East Riding of Yorkshire, Dr. Edmund Barker died suddenly in his chair on April 10, having just finished his morning surgery.

A Yorkshireman in the truest sense, Dr. Barker was born at Hovingham 71 years ago and, although his father was a farmer, he came of a medical family, for his grandfather, Dr. Thomas H. Barker, was a noted surgeon of York. Before qualifying in Glasgow in 1895 he had been a medical student at Belfast and Leeds. He had previously served as a medical apprentice at Doncaster Infirmary and was for some time an unqualified assistant in general practice. When, therefore, he started practice in the Hessle Road district of Hull over forty years ago he was a man of very wide experience. His geniality and kindly interest in everything and everybody in his district gave him an amazing knowledge of the community among whose members he spent so long a period. Edmund Barker had an unsurpassed knowledge of the Yorkshire dialect, and his amusing tales of his experiences in practice will long be remembered by many of his colleagues.

For many years he took a very active interest in all things medical in the city. He was an original member of the Hull Insurance Committee and Local Medical and Panel Committee, of which he was chairman for some years. He was a past-president of the Hull Medical Society, and was a keen member of the British Medical Association until increasing difficulty in getting about compelled him to give up active participation in local medical affairs. He possessed a wonderful memory and was an exceedingly clear thinker; his advice was, therefore, frequently sought by his colleagues on difficulties in practice of all kinds. A fitting tribute to his great popularity with his fellow practitioners was paid to him when he retired from committee work, for he was entertained to dinner and presented with a piece of plate to commemorate the occasion. He is survived by his second wife and his only daughter, who is the wife of Dr. Stanley Worthington of the Ministry of Health Regional Medical Service.

Edmund Barker, writes "J. N.," was known as one of the oldest doctors still in active practice in Hull. And in his practice he always *was* active and energetic. He took considerable interest in medical politics, from the time when he was a participator in "the battle of the clubs" when in practice in Northumberland, down to the early stormy days of the National Health Insurance Act. When panel practice was an accomplished fact he became a member of the Hull Panel and Local Committee. He also served on the local Insurance Committee up to his retirement from all committees a few years ago. He was a good committeeman, though not a particularly good speaker. His own way of putting it was that he was all right sitting at a table and *talking*: but that when he had to stand up he was too nervous to be any good. Barker was versatile in his tastes and temperament. He exhibited many of the best characteristics of the good Yorkshireman that he was. In business matters keen and a good bargainer; in his personal and social side hospitable, generous, and ever ready to help lame dogs over stiles. He loved the company of friends, and being a good raconteur, with a great fund not merely of tales and stories but of general knowledge, his friends found in him a good companion. He was largely a follower of Belloc and Chesterton; and loved the old-fashioned country inn far above any of the modern monstrosities with plush and chromium decorations, and was a genuine authority on the old inns of the North of England. He had many tastes, interests, hobbies. A good botanist, he had specialized to a considerable extent in the study of ferns. Like many brought up in the country, he knew much about bird life, not so much from the scientific point of view as from the aesthetic side. He was a good fisherman; and when he practised in Northumberland was a member of the Conservancy Board, on which he did good work for the preservation of piscine life and the care of trout and other streams. In fact, he was interested in almost every aspect of country and outdoor life: and for anyone who had similar tastes he was a delightful and instructive companion. In the more quiet aspects of life he had also many interests. He had been an ardent philatelist. He was well and widely read, his knowledge of the literature of Yorkshire especially being extensive; while he was devoted to certain types of Irish literature, and books dealing with that country—which he loved best after his own native Yorkshire. Barker was a stout believer in the traditions of his profession: and was never known to act in any unprofessional way towards a colleague. He was very human, alike in his faults and his virtues; always optimistic, and in his dealings with his fellows ever ready to believe the best and see the best side of anyone, until or unless experience undeceived him. He was a staunch friend, and in that capacity he will be sorely missed by one who had been admitted to his close friendship to such a degree that we two came to be described as "stable companions."

G. W. C. KAYE, D.Sc., F.R.S.

The death of Dr. George William Clarkson Kaye, F.R.S., on April 16 at the age of 61 removes a distinguished physicist who had many and important contacts with medical science, and through it with medical practice. Dr. Kaye had been superintendent of the physics department of the National Physical Laboratory, Teddington, for nearly twenty years. Among the many high offices held by him were those of president of the Roentgen Society and of the British Institute of Radiology, secretary of the International X-ray and Radium Protection Committee, member of the National Radium Commission and its secretary for four years, member of the Grand Council of the British Empire Cancer Campaign, chairman of the Noise Investigation Committee appointed by the Minister of Transport, and honorary editor of the *British Journal of Radiology* for thirteen years. He had also been Mackenzie Davidson lecturer and medallist and Stanley Melville memorial lecturer and medallist, and thus commemorated two pioneers in medical radiology.

ERIC SNELL, M.A., M.B.

The medical profession in Nottingham has sustained a great loss by the death of Dr. Eric Snell, which took place on April 6 after a long illness patiently borne.

James Eric Boobbyer Snell, who was 63 years of age, came of a medical family of the East Midlands. He was himself the son of a doctor, Dr. Enoch Snell, and two of his brothers are members of the medical profession—Dr. Montague Snell of Nottingham, and Dr. Rupert Snell of Wimbledon. One of his two sons, Surgeon Lieut. Thomas Brooking Snell, R.N.V.R., has kept up the medical tradition of the family; his other son is a flying officer in the R.A.F.

The late Dr. Snell was associated with Nottingham during the whole of his life. He was educated at the High School there, afterwards going on to Caius College, Cambridge. In 1898 he took the Natural Sciences Tripos with honours, and continued his medical education in London at St. Thomas's Hospital. He qualified in 1902 and settled down in practice in his own Nottingham, where he quickly gained wide esteem as a family practitioner among both his patients and his medical colleagues. The large and representative assembly which filled the church at Edwalton, the village where he had lived in recent years, on the occasion of his funeral was a testimony to the regard in which he was held.

Dr. Snell had been a member of the British Medical Association for thirty-seven years. When the Association held its Annual Meeting in Nottingham in 1926 he was co-editor with Dr. Galloway of the admirable *Book of Nottingham* prepared for the occasion. He was an active member of the Nottingham Medico-Chirurgical Society, and was identified in various ways with University College and with the branch of the British Red Cross Society. His three daughters are serving in a Red Cross hospital. His illness began in a severe form in the autumn of 1939. He knew that it could have only one end, but his attitude was one of such oustanding courage as to cheer and inspire all who came in contact with him in recent months. He married the daughter of the late Sir Thomas Shipstone, a well-known Nottingham philanthropist closely associated with the Nottingham General Hospital, who survives him.

RUBY BLACKLOCK THOMSON, M.B., Ch.B., D.P.H.

Dr. Ruby Thomson was born in May, 1889, at Hong Kong, the elder daughter of Dr. J. C. Thomson, a member of the Government Medical Service of that Colony. She came to England at the age of ten, and in 1912 graduated in medicine at Edinburgh University, and in 1923 took the D.P.H. (Ed. and Glasg.). She held appointments at Toxteth Infirmary, Liverpool, at Victoria Hospital for Sick Children, Hull, and under the County Council of Staffordshire, and during the last war was resident medical officer at Woolwich Arsenal. In 1919 she served for some months under Dr. George Buchan at Willesden, and in July of that year was appointed medical officer in charge of maternity and child welfare to the Metropolitan Borough of Fulham. This post she held till last June, when she retired on account of ill-health. She had been a member of the B.M.A. for twenty-eight years.

Dr. Thomson writes A. H. N.) was known to suffer from high blood pressure. During the evening of April 2, while chatting with friends, she suddenly complained of giddiness, slid from her chair unconscious, and by shortly after midnight had slipped out

of life, leaving an appreciable gap in the senior ranks of the Public Health Service and a wider one in the hearts of her many friends. On the intellectual side Dr. Thomson inherited an excellent brain of the accurate order and always had a complete grasp of the administrative and clinical details of her work. She did not "think," she knew, and one could go to her, as indeed many did, in the confidence that information would be most willingly given and would be correct. The same applied to matters of general knowledge, in which her interests were wide. In the Borough of Fulham she set and maintained a high standard of work and had the full respect and confidence of councillors, officials, and public. At medical meetings she did not often speak, but when she did it was to the point. It was, however, in her personal relationships that Dr. Thomson made her greatest impression. She had character and personality in an unusual degree. With the highest code of personal and professional conduct that never condoned slackness or inefficiency in herself or in others, a shrewd and realistic judgment of persons and motives, and a directness of speech which in others might have given offence, she combined much social tact and a generous, enthusiastic, and lovable nature that won friends and willing service wherever she went and among all sorts of people, not least among the poor mothers of Fulham.

It was with a great sense of shock and grief (writes J. A. S.) that the many friends of Dr. Ruby Thomson heard of her sudden death. Dr. Thomson worked in Fulham from the earliest days of maternity and child welfare activity in the borough, and took her full share in the inauguration of the Council's first maternity home, infant welfare clinics, day nursery, and babies' hospital. Her single-minded devotion to her work and her untiring efforts for the welfare of the mothers and babies in Fulham will long be remembered both by her colleagues and her patients, for whom she had a high sense of responsibility and whose personal troubles she so often shared. Dr. Thomson was for many years the Council's representative on the National Baby Week Council and the Association of Maternity and Child Welfare Centres. Her activities in these spheres brought her a wide circle of friends and acquaintances. Her loss will be widely felt, for her honesty of purpose and enthusiastic interest in every phase of maternity and child welfare work endeared her to all.

Universities and Colleges

UNIVERSITY OF GLASGOW

A graduation ceremony was held on April 19, when the following medical degrees were conferred:

M.D.—*Margaret D. Crawford, *A. C. Lendrum, †R. S. Barclay, ‡D. C. Dewar, ‡A. Hutchison, ‡J. S. McGregor, ‡J. McIntosh, ‡ §I. M. Scott, §J. C. Hogarth, §J. E. McClemont, D. A. McCracken, §J. L. Rennie, §A. M. Spence.

M.B., CH.B.—‡R. L. T. Hill, J. Alexander, A. Bancewicz, W. G. Barrie, P. Barron, A. S. Biggart, J. D. Blair, Agnes M. Brogan, J. T. S. Brown, May M. Brown, R. J. Cairns, W. Chambers, Christina C. Christie, W. McC. Crawford, D. C. Devine, W. D. W. Dick, A. B. Donald, J. McD. Glennie, A. Gordon, W. McL. Gregor, H. R. C. Hay, A. L. Henderson, H. D. Hewitt, Catherine T. Howat, A. S. Hunter, Frances M. J. Hutchinson, A. Jamieson, Mary C. Kilpatrick, Dorothy A. Knox, J. D. Laurie, M. B. Leitch, J. Lockie, T. McCarroll, I. R. McCaul, R. O. O. McCrone, H. M. Macfie, J. Mackechnie, S. Y. MacKechnie, A. MacLachlan, L. G. MacLachlan, A. McLaren, Christina R. C. MacLean, N. McLean, Pearl A. I. MacLeod, I. F. MacMath, A. H. Miller, A. G. B. Miller, D. G. Munro, A. A. Murray, A. F. Nelson, J. A. Ogilvy, W. Rankin, F. C. Rodger, T. Sergeant, M. Shafar, A. H. Smith, S. Soldberg, W. Steele, J. S. Stevenson, W. J. B. Templeton, Eleanor Tennant, Janet Waugh, J. B. de V. Weir, G. D. Wilson, D. Wright.

The following prizes, among others, were awarded:

University Prizes.—Bellahouston Medals: Theodore Crawford, A. S. Rogen, A. T. M. Wilson. Captain H. S. Ranken, V.C., Memorial Prize: D. Jamieson.

Special Class Prize.—Surgery, Macleod Medal: R. A. P. Brown.

* With honours. † With high commendation.
‡ With commendation. § *In absentia.*

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council of the Royal College of Surgeons of England, held on April 17, with the President, Sir Hugh Lett, in the chair, the Walker Prize for Cancer Research was awarded to Dr. Peyton Rous of the Rockefeller Institute, New York, for his discovery and systematic investigation of filterable tumours.

It was decided to use the bequest from the late Sir Charles Tomes as an endowment for a lectureship on some subject connected with odontology.

Mr. H. S. Souttar was re-elected a member of the Court of Examiners for the ensuing year.

Mrs. Antoinette Pirie, Ph.D., was appointed a Leverhulme Scholar to work in the laboratories of the Imperial Cancer Research Fund on "The Effect of the Spreading Factor on the Reaction between Tumour Viruses and the Cells which they Infect and in which they Multiply."

The Cartwright Prize for 1936-40 was not awarded. The subject for essays for the years 1941-5 is "The Replacement of Lost Tissues following Injuries of the Jaws."

Mr. J. W. Walker and Mr. T. H. Butler, being members of the College of over twenty years' standing, were elected Fellows of the College.

A letter was received from the Imperial Cancer Research Fund expressing appreciation of the award by the College of two lectureships annually to members of the scientific staff of the Fund.

It was decided that in the forthcoming Primary and Final Examinations for the Fellowship the papers may be written alternatively in Manchester or London and the viva voce will be in London only. There will be no Final Examination for the Fellowship in February, 1942.

Diplomas

Diplomas of Membership were granted to G. C. Purslow and J. R. J. Winter.

Diplomas in Child Health were granted, jointly with the Royal College of Physicians of London, to the following candidates:

C. L. Davidson, Mary G. Tate, Brenda M. Jones, H. W. Bradford, Beryl E. Barsby, J. J. Linehan, G. P. McLaughlan, Margaret E. M. McLaughlin, F. C. Oliphant.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P. and S.Glasg.:

A. Abrahams, Marguerite S. Annett, J. Bhageerutty, J. W. Bringan, L. G. Christopher, H. O. Engel, A. W. Paterson, E. C. Richardson, H. Sandler, B. Schaefer, J. M. Sherriff, A. Shields, R. J. G. Sinclair, W. J. Y. Speedy, W. F. Vancrosson, J. H. Wakely, W. Waterston, O. M. Watt, G. A. Y. West, J. P. Weiss, V. G. Whelan, J. M. Yablonowitz.

The following graduates of recognized foreign universities were also admitted Licentiates:

S. Frank, Margarete J. Hildebrand, T. Horowitz, Liselotte Lennhoff, Kate Maunsell, O. Olbrich, E. R. Schuster.

Medical News

The Harveian Lecture for 1941 on "The Coroner, the Doctor, and the Public" will be delivered by Dr. John Taylor, at 26, Portland Place, W., on Monday, May 5, at 2.30 p.m.

The Dr. Mann Lectures for 1940-1 on "Chemotherapy" will be delivered before the Royal Society of Arts (John Adam Street, Adelphi, W.C.) by Dr. G. Stafford Whitby, director of the Chemical Research Laboratory, Teddington, on Mondays, April 28 and May 5, at 2.30 p.m.

The special afternoon lectures to be given this spring at the Royal Institution, 21, Albemarle Street, W.1, include one on Tuesday, May 20, by Sir Joseph Barcroft, F.R.S., on the "Development of Function in the Mammalian Organism," and another, on May 27, by Dr. C. F. A. Pantin, F.R.S., on "The Origin of Life"; both at 5.15 p.m.

Major-General Sir John Kennedy, vice-chairman of the Executive Committee of the British Red Cross and St. John War Organization, will read a paper on "The Red Cross in War" before the Royal Society of Arts (John Adam Street, Adelphi, W.C.) on Wednesday, May 7, at 2.30 p.m.

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., on Tuesday, April 29, at 2.30 p.m., when there will be a discussion on "How to Get the Infected Woman under Treatment," to be opened by Dr. Morna Rawlins.

Important discussions in London on questions relating to prisoners of war, including that of getting food to them, have taken place between the British Red Cross and St. John War Organization and two delegates of the International Red Cross now on their way back to Geneva. Mlle. Lucie Odier, member of the International Committee of the Red Cross, and Dr. Marcel Junod, the chief delegate, who has seen British prisoners of war and interned civilians in Germany and Occupied France, have established an even closer contact with all Red Cross and St. John Departments and have cleared up a number of matters regarding prisoners of war and internees in enemy hands.

We have received the first number of a new American medical periodical entitled the *Journal of Clinical Endocrinology*, which is to be issued monthly at an annual subscription rate of $6.50. It is published under the auspices of the Association for the Study of Internal Secretions, and is intended to be complementary to the association's older journal, *Endocrinology*, which was first published in 1937.

Dr. Mazyck P. Ravenel, editor-in-chief of the *American Journal of Public Health*, has been made editor emeritus, and is succeeded by Dr. Harry Stoll Mustard, director of the De Lamar Institute of Public Health of Columbia University, New York.

EPIDEMIOLOGICAL NOTES

Infectious Diseases for the Week

During the week under review the incidence of whooping-cough has increased and that of measles decreased. The number of notifications for the other common infectious diseases has not been materially altered. Cerebrospinal fever continues to decline: the provisional figures for the two weeks ending April 5 and 12 are 335 and 282 respectively.

Whooping-cough

The further rise in the number of cases reported during the week has been due mainly to the increase in the notifications from London and the Home Counties. Of the three counties which showed the largest increase last week, Lancaster and Leicestershire recorded a fall of 39 and 12 cases respectively, whilst Yorkshire, West Riding, had a further increase, 20 more than in the previous week. The principal increases in this county were from Huddersfield C.B. 20, and Batley M.B. 18.

Measles

Although the incidence of measles decreased for the country as a whole, London and the surrounding counties had an increased number of cases on the previous week. The increases were Bedfordshire 5, Berkshire 35, Hertfordshire 63, Kent 47, London 21, Middlesex 214. The large rise in Middlesex was due to the increased incidence in Edmonton M.B., where the cases rose from 109 to 215, and Enfield U.D. with a rise from 59 to 189.

Dysentery

The total number of cases showed an increase of 12 on the total for the previous week. The most notable of the localized outbreaks are Kent, Dartford R.D. 9; Leicestershire, Leicester C.B. 19; Glamorganshire, Cardiff R.D. 21. No cases were reported from these areas in the preceding week.

Paratyphoid Fever

Ninety-one cases of paratyphoid have been reported from Scotland during the week under review, making a total of 173 for the last two weeks. The counties of Angus 13, Inverness 48, Moray and Nairn 15, and Ross and Cromarty 87, account for practically all the cases during these two weeks.

Scabies

From several areas in England and Scotland reports have shown an increase in the incidence of scabies; the spread of this disease has caused concern to local authorities. Cases of scabies have been increasing during recent years and have proved intractable. The fact that it is not notifiable and that local health departments have no statutory powers for dealing with it makes the condition extremely difficult to control.

No. 13

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 29, 1941.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1941					1940 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)*	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	319	22	72	4		475	52	106	2	9
Deaths		3	2				6	11		
Diphtheria	1,038	42	257	32		678	31	245	50	32
Deaths	30	1	8	3	2	20	1	5	—	3
Dysentery	140	23	27			28	2	63		—
Deaths			—	—				—	—	—
Encephalitis lethargica, acute	5	—	—			4	—	1		—
Deaths		1	—				—	1		
Enteric (typhoid and paratyphoid) fever	20	6	93	5		29	3	189	2	—
Deaths	1	—	—	—		2	1	1	—	—
Erysipelas			35	3				52	3	1
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years										
Deaths	30	4	12	6	7	35	2	11	12	7
Measles	14,589	270	142			4,111	51	58		180
Deaths	20	1	—	—		7	—	1	1	3
Ophthalmia neonatorum	79	2	20			83	6	25		2
Deaths										
Pneumonia, influenzal†	1,264	53	28	10		1,296	68	26	11	9
Deaths (from influenza)	87	9	8	1	8	221	16	15	7	11
Pneumonia, primary			538	21				255	7	
Deaths		—		13	24		69		21	28
Polio-encephalitis, acute	2	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	3	—	1	1		4	—	2		—
Deaths		—	—				—	—		
Puerperal fever	—	3	29	5		1	1	13	2	—
Deaths		—					—			
Puerperal pyrexia	154	9	37			169	7	24		—
Deaths										
Relapsing fever	—	—				—	—			—
Deaths										
Scarlet fever	1,212	53	145	39		770	29	129	38	55
Deaths	—	—	1	—	1	2	—	1	—	—
Small-pox	—	—	—	—		—	—	—	—	—
Deaths	—	—	—	—		—	—	—	—	—
Typhus fever	—	—	—	1		—	—	—	—	—
Deaths			—	—				—	—	—
Whooping-cough	4,440	84	855			449	14	17		32
Deaths	39	2	18	4	1	7	—	2	—	1
Deaths (0-1 year)	418	41	129	36	24	452	55	75	43	45
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	6,360	965	798	236	208	6,153	929	809	214	194
Annual death rate (per 1,000 persons living)			17.4	15.7	18.2			15.1	14.3	17.0
Live births	5,165	423	847	340	246	5,526	890	780	271	201
Annual rate per 1,000 persons living			17.1	22.6	21.5			15.8	18.1	17.7
Stillbirths	247	15	46			252	29	35		
Rate per 1,000 total births (including stillborn)			52					43		

* No returns received from Northern Ireland for this week.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Intermittent Polyuria

"G. A. G. S." writes: I shall be grateful if some fellow practitioner can find a solution to the following. I am 80 years of age, and have enjoyed pretty good health on the whole, except suffering from bacilluria for the last twenty-five years, with intermittent attacks of acute vesiculitis, but the latter has given no trouble for five years. My trouble is that I get attacks of passing very large quantities of urine, just like ordinary water, at night, disturbing me every hour. This happens as a rule every ten days, otherwise I am only disturbed once or twice at night, especially if the urine is high-coloured. My prostate is normal, and there is no albumin or sugar. My vitality is quite wonderful for my age: I play golf and can walk five miles without fatigue.

Income Tax

Cessation. Cash Basis

"NONO" is taking over the other half-share in the practice and the partners are claiming to have the practice regarded as ceasing. Applying the cash basis to the last year will inflate the receipts by bringing five quarters' cheques into the account. Is this correct?

*** The cash basis is not legally defensible but is accepted (not very willingly) by the revenue authorities as a matter of convenience. They are sure to insist that if it is applied at all it is applied strictly. "Nono's" only alternative is to discard the cash basis for the last year and deal with the liability on the basis of earnings—i.e., gross receipts less an estimated deduction for bad and doubtful debts.

Earnings of Wife

"M." is acting as locumtenent for an anaesthetist and pays him half the fees received. How should her liability be calculated?

*** She should deduct the payments made to the absentee from the full amounts paid; the balance is her gross income. From that expenses can be deducted if incurred wholly and exclusively in carrying out the work; this would include travelling from one working-point to another, but not between residence and a place of employment, if the work results from a specific appointment. The cost of books, apparatus, etc., is allowable only to the extent necessary to maintain (but not to improve or extend) the equipment. The net income is assessable separately from the husband's income, but in his name. A special allowance of £45, as well as the ordinary earned income relief, can be claimed—or should be given automatically without specific claim.

General Expenses—Refresher Course

"J. F." has claimed two-fifths of the cost of household rates, lighting, etc., whereas the inspector declines to allow more than one-third; the expense of attending a refresher course has also been refused.

*** As regards the appropriate fraction of general expenses, the only real test is what is reasonable having regard to the proportion and value of the part used professionally as compared with the whole premises. Circumstances vary so much that no particular fraction can be recommended. The expense of attending a refresher course is normally refused on the ground that it is not incurred "wholly and exclusively for the purposes of the . . . profession." It is considered that the courts would probably hold that expense borne in connexion with the improvement or maintenance of a practitioner's professional knowledge and skill would be too indirect to be allowable, and we cannot advise "J. F." to appeal on the point.

LETTERS, NOTES ETC.

Proposed Memorial to Dr. Fortescue Fox

A proposal has lately come from Beirût that there should be a memorial to the late Dr. R. Fortescue Fox at the Lebanon Hospital for Mental Diseases in Syria, with which he was connected for forty-three years, sixteen of them as chairman in London. The further suggestion has been made that this should take the form of a medical baths department, which is the one means of treatment still lacking. Four years ago Dr. Stewart Miller, the medical director, included this in his programme, but so far it has not been possible to provide it, further beds at the hospital being more urgent. Such a memorial seems most appropriate, for it would link one of the major concerns of Dr. Fox's life (hydrology and physical medicine) with an institution which was always specially dear to him, particularly after he visited it in 1929, and stands for the "universal spirit" which always burned within him. The proposal has the warm support of members of the Lebanon Hospital Committee, though they feel unable at present to make any further appeal to their subscribers. It is certainly not the most favourable of times in which to put forward such a scheme, for many who might otherwise have liked to help will find this at present out of the question. On the other hand, things may not improve financially for some time, and it seems better to raise the money now, even though it has to be invested temporarily in national funds until the building can be begun. It is thought that a sum of £750 would build and equip a small but effective department, to be called the "Fortescue Fox Medical Baths." The London Office of the Lebanon Hospital is at Drayton House, Gordon Street, W.C.1, and readers who favour this project may send contributions to the secretary, Miss Hilda Fox.

Laurence-Moon-Biedl Syndrome, with Tetany: An Acknowledgment

DR. DAVID FERRIMAN writes: I regret that in the article on the "Laurence-Moon-Biedl Syndrome, with Tetany" (February 1, p. 157) thanks were not expressed to Dr. N. F. Maclagan for the biochemical investigations. He was not only responsible for these, but also suggested obtaining arterial blood when venepunctures were unavailing. I have been unable to get in touch with Major D'Abreu, but am sure he will join with me in thanking Dr. Maclagan very heartily, and in expressing regrets for our previous forgetfulness.

Help for Civilians Blinded in Air Raids

No one deprived of sight by air-raid injury need despair of finding a tolerable and even happy future, says the National Institute for the Blind. Welfare workers dealing with these people are enjoined to instil into them "the belief that a full life may lie ahead with unexpected possibilities of usefulness." This is laid down as a guiding rule in a pamphlet, *Blindness from Air Raids*, setting out the principles to be observed in the Institute's homes of recovery. Copies of the pamphlet may be had from the office, 224, Great Portland Street, W.1. Where the confidence of a newly blinded person has been shattered, it must be restored by an attitude of hopefulness and helpfulness rather than by wordy exhortation. Ordinary personal duties should be undertaken unaided: the man to shave himself, the woman to do her hair. Patients should be encouraged to walk without undue groping, to apply their hearing more observantly, and generally compensate for the loss of one sense by increased use of others. Much of the training at a home of recovery, which is to be regarded as a half-way house between hospital and the eventual training centre, will proceed unsuspected through the medium of games, handicrafts, and country walks. The patients will also have the opportunity of meeting blind men and women who have already won through to a life of independence; it may be a university graduate or a successful masseuse. Such contacts should have great psychological value for those about to begin the same long journey, and are regarded as essential in the training scheme.

Sound Detector for Rescue Work

Much interest has been aroused by Dr. G. S. Swan's experience in rescuing two women from burial under debris (*Journal*, April 19, p. 589), and by his recommendation that some form of sound detector should be used in this work. The Capac Company, Ltd., 2, Ullswater Road, S.W.13, have sent us a leaflet describing their "Compound Engineer's Bin-aural Stethoscope" which is priced at 79s. and might prove invaluable to demolition and rescue workers. This instrument would be useful in detecting not only the voices of people buried under debris, but also the position of leaking pipes and valves. The Capac Company inform us that a sample instrument is always available for inspection at their offices.